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ESSAY
ON THE
CAUSES, EARLY SIGNS,
AND
PREVENTION
OF
PULMONARY CONSUMPTION
FOR THE USE OF
PARENTS *and* PRECEPTORS.

BY
THOMAS BEDDOES, M. D.

K

— Pueri innuptaeque puellae
Impositique rogo juvenes ante ora parentum.

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ESSAY
ON THE
CAUSES, EARLY SIGNS,
AND
PREVENTION
OF
PERMANENT CONSUMPTION



THOMAS REDDOES, M.D.

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ERRATA.

Page.	line.	
27,	20,	for <i>della Tifchezza</i> , r. <i>del contagio Tifico</i> .
28,	6,	for <i>equally</i> , r. <i>equably</i> .
48,	6,	for <i>woman</i> , r. <i>women</i> .
73,	11,	after <i>secured</i> , r. <i>but</i> .
156,	9,	for <i>more</i> , r. <i>most</i> .
179,	5,	for <i>the glands</i> , r. <i>these glands</i> .
252,	10,	for <i>occur</i> , r. <i>concur</i> .

ESSAY

ON

CONSUMPTION.

VIEW OF THE SUBJECT.

THE prevention of pulmonary consumption, and its cure, may be numbered among the things most wanting to our system of life. *Phthisis pulmonalis*, or the disorder characterised by cough, by expectoration of purulent matter, hectic fever and progressive emaciation, is known to be almost invariably fatal. Of the few who after being once seized have escaped, no account can be taken, not one in many hundreds finally surviving.

Its frequency, in town and country alike, forces itself no less upon general

VIEW OF THE SUBJECT.

notice. But, in consequence of the profound disregard of those who conduct the concerns of society to the personal condition of its members, and of the baneful supineness of the public mind on a subject of such immediate interest, the number of victims cannot be approximately stated. In the British Islands it is incontestably great. To consumption nearly one fourth part of the deaths they bear, is referred by the bills of mortality. This, (notwithstanding their known inaccuracy) sufficiently indicates the desolation occasioned by the complaint, which must be the more lamented when it is considered, that those whom it destroys, are commonly in the prime of life, and not often past the meridian. The Rev. William Gorfuch, by keeping a register for ten years at Shrewsbury, discovered that the number of deaths from consumption was, in his parish, somewhat more than one in four. By favour of a friend, I possess the

abstract of a similar register for one of the parishes in Bristol, where the pastor has been commendably attentive to the enumeration of his flock. By enquiry from house to house, he found the population to be about 10,000. The following table shews the mortality, registered under the heads *decline* and *consumption*. But it is to be observed, that the same sources of inaccuracy exist here, as in the London accounts. The persons (mostly of the lower class) who report the deaths, refer every complaint of slow progress and attended with emaciation, to consumption or decline. Consequently, the number under this head is greater than of those whom real phthisis pulmonalis cuts off. Many also are interred at different burying-places, and of course not registered. But there is no reason why the latter circumstance should be supposed to affect the proportions.

VIEW OF THE SUBJECT.

<i>Years.</i>	<i>total deaths.</i>	<i>by consumption or decline.</i>
1790 - - - -	158 - - - -	56
1791 - - - -	202 - - - -	104
1792 - - - -	215 - - - -	90
1793 - - - -	235 - - - -	107
1794 - - - -	213 - - - -	108
1795 - - - -	215 - - - -	127
1796 - - - -	216 - - - -	91
	1511	683

What may be collected from private practice, does not, I believe, in any respect, tend to invalidate the conclusion, deducible from these statements.

The disease is seen sometimes to perform an operation nearly the reverse of decimation, leaving alive one or two members only out of a large family. I was, not long since, consulted for a phthifical girl, who had lost six (that is to say, all) her brothers and sisters in the same way. There lies before me a letter, describing the phthifical symptoms of a young person (the last of his name) and containing a list of father, mother, two sisters, and a first cousin, who in consequence of simi-

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5

lar attacks, had followed one another to the grave in the space of about five years. These are far from being all the instances I have known; and scarce a physician of moderate experience, but must have met with instances equally deplorable.

Could a general assembly of British parents be convened for the mutual communication of family disasters, originating in this source, how many thousands might with very little variation, adopt the language of Nestor, when he speaks of the havoc occasioned among the Greeks, by the war at Troy!

καλεκταθεν' οσσοι' αριστοι
Ενθα μιν 'Αϊας κειται 'αρηιος, 'ενθα δ' Αχιλλευσ,
'Ενθα δε Πατροκλος, θεοφιν μηςωρ 'αταλαντος
'Ενθα δ' εμος φιλος 'υιος —

Shall I the dire distressful scenes review;
And open all a parent's grief anew?
Trace the long roll of death, and, sorrowing, tell
How, mark'd by fate, the best and loveliest fell?

There Ajax huge, Achilles there the brave,
And young Patroclus found an early grave;
There too my child —

It would perhaps be possible to approximate towards an estimate of the number of British families in opulent circumstances, infested by this disease. The members of the two houses of parliament, who have lost either father, mother, brother, sister or child, by consumption, could, I suppose, be ascertained without much difficulty. Now the proportion would probably apply pretty nearly to the gentry at large, their respective habits and constitutions not being materially affected by the difference in wealth.

The fatality and frequency of consumption are better understood than its severity. Writers of romance (whether from ignorance or because it suits the tone of their narrative) exhibit the slow decline of the consumptive, as a state on which the fancy may agreeably repose, and in which not much more misery is felt, than is expressed by a blossom, nipped by untimely frosts. Those who only see the sufferers in passing, are

misled by the representation. And I have heard many persons thus prepossessed, after closely attending a sick friend, declare their surprise not less than their horror, at the unexpected scenes of varied and protracted misery which they have been condemned to witness.

To lead the imagination through some of these scenes, might have its use in creating a salutary alarm. But I feel myself totally unequal to the task. I do not speak of the difficulty of noting down the obvious sensible tokens by which the calm practitioner of medicine may recognize the complaint in its various stages—this is easy enough, and authors do it every day, as monks count their bead-roll—but of the difficulty of bringing out all the patient's feelings into distinct relief, and delineating a picture which a parent, fresh from the loss of a child, shall acknowledge.

VIEW OF THE SUBJECT.

The short teasing cough at first, provoked by incessant tickling in the throat, as if the minute fragment of some extraneous body had immoveably fixed itself there; the subsequent hard rending cough, attended sometimes by retching and vomiting, sometimes by stitches which necessitate the most violent struggle against the continued solicitation to cough, and severely punish a moment of inattention; the expectoration sometimes nauseous, always offensive to the eye and harrassing when it is not free; the languor with which the patient finds himself overpowered, when his attention is not occupied by some among his various fixed or flying pains; the extremes of cold and heat through which he is carried by the daily returns of hectic; the sweats in which his repose by night drenches him; the breathlessness on motion or without motion, arising by degrees to a sense of drowning, and terminating in actual drowning,

when there is no longer strength to bring up the fluids, secreted in the chest; the disorder in the bowels, towards the last always threatening, and finally unrestrainable, while it cuts off those indulgencies which the very thirst it creates or aggravates impatiently demands;—these are but a part of the torments under which the physician, during his transient visit, in an immense majority of instances, sees the consumptive labouring.) And what are the few minutes of a physician's call, compared to the whole twenty-four hours, lengthened out as they often are to the tenants of the sick chamber, by pain and incapability of amusement on one side, and by tender concern on the other?

Into the catalogue of evils flowing from any cause, those that affect the by-standers should be received, as well as those that affect the principal party. Thus in the early stage of consumption, how painful must it be to perceive female delicacy,

vainly struggling against an increasing, inexorable disease, and to have the avowal extorted partly by affectionate urgency, partly by distress! After the full disclosure is made, how horrible (according to circumstances and the character of the medical attendant) for the parent to listen to his frank explanation, to search for the hidden meaning of his looks, or to pierce through his clumsy dissimulation! The despondence which (whatever is said to the contrary) the sick not unfrequently express, is miserable. The sanguine hope which an hour of sunshine commonly excites, is more miserable still. What is worst perhaps, is the knowledge of the patient's insecurity, during these intervals of ease! The storm of symptoms, that has so often broken in at once upon the most apparent settled calm, allowing the watchful friends no respite from their anxiety. And how shocking at last (under a consciousness that the event will give the heart

a blow from which it can never fully recover) to be driven to call upon death to close the long series of sufferings!

PLAN of the ESSAY.

Such is the aspect under which pulmonary consumption has often presented itself to me, both as an observer of diseases, and a sharer in the calamities, incident to humanity.—Nor would I run the risque of reviving grief, or exciting apprehension, but for reasons that after mature deliberation appear conclusive. I am thoroughly persuaded of the practicability of preserving numbers who but for proper management must perish prematurely. Let those who need it, be clad in defensive armour, and they may defy the rage of this devouring monster, that stifles at

his leisure the sons and daughters of the land. I am equally persuaded of the impossibility of attaining the end in view, unless the means be promulgated in the interior of families. By the occasional counsel of physicians, experience proves how little has been effected; nor would their occasional counsel be of much greater avail than it has heretofore been, though physicians were as numerous as we find the advisers of physic, and each were endowed with the skill of the god *Æsculapius*.

The full undisguised truth seems necessary to incite people to have recourse to the means of preservation. Authors of prophylactic medicine have undoubtedly a right to repeat the charge (so strenuously urged by the expounders of religious mysteries) of inattention to those concerns in which men are most deeply involved.

But the principal circumstance (namely, the dreaded event) is not to be concealed. The daily experience of life would suffi-

ciently reveal it, though books had been silent. The great self-deception practised by the consumptive is in refusing to take the case to themselves. Amidst all their sufferings, *they are not in a consumption! their chest may be tender, but their lungs are still untouched!* Under the disease fully formed I have seen no inconsiderable number of medical men deluding themselves with this hope, which the similarity of comparatively slight indispositions in the particulars of cough, expectoration and feverishness, supported; and which I certainly did not feel it incumbent upon me to extinguish.

Whether the portion of misery I ascribe to consumption, correspond to the ideas of others or not, it is unquestionably large enough to render the prevention of the complaint most highly desirable.—The plan which I ought to adopt in delivering what I have to say appears most perfectly obvious. It is my business to omit nothing

calculated to rouse vigilance, or to render the measures to be pursued, clearly comprehensible. Nor should I introduce any thing but what in my own opinion, conduces to one or other of these ends. All disquisitions of mere curiosity therefore—all considerations of which the medical practitioner only can avail himself, I shall pass over. Hence, I shall not touch upon the dispute concerning the daily double exacerbation of hectic fever, nor shall I examine the opinions of others concerning tubercles, or propose my own ideas at any length.

In search of facts, applicable in the sequel to my subject, I shall first engage in a brief enquiry concerning those countries and classes, that enjoy more or less of exemption from consumption. Could a doctrine of exemption be established, it might furnish something useful by way of moral. If we could discern the circumstances on which exemption depends, we

should only have to adopt them as nearly as possible into our own conduct. On the other hand, if it shall appear that there are whole descriptions of persons more liable to the complaint, we may stand a chance of collecting from their history a lesson equally useful, concerning the habits to be avoided.

It would have been doubtless more simple to lay down a system of rules. But in a person who is conscious that he has not a thorough knowledge of causes and effects, this would argue too great presumption. Nor would his authority be effectual to the observance of his precepts, unless he was known to possess, as well as possessed, that necessary qualification. It would not indeed, be easy to comprehend the variety of situations in a set of rules; but the principles once known, rules for the occasion may be easily deduced. It seems therefore, in every view, safer not to lay down conclusions without their premises.

The precept of Horace—

— Nonum prematur in annum

appears to me pernicious in the extension often given it. The seeds of science will at times fructify more abundantly in many minds than in one. They cannot therefore, in such cases, be too soon cast abroad. On the present occasion, however, I thought it due to those who may be disposed to follow my suggestions, to take a considerable time for the revision of my materials. In the same spirit of caution, I shall everywhere adhere to gross, palpable facts, refraining from all attempts to penetrate by conjecture into the hidden workings of the animal machine.

I should perhaps have still longer delayed the publication of these papers, had I not supposed the lately ascertained means of cure (in some circumstances at least of true consumption) likely to awaken curiosity to the whole subject. The situation

of Europe has also its weight in urging me forward. Not only is *the night coming when no man can work*, but I am apprehensive likewise that *the tempest is gathering, which may sweep away the workman together with his work.*

CLIMATE.

The relation of climate to consumption forms an important article of investigation. In touching upon it, I hope to throw out some observations which may be of use to those who are at a loss to determine upon the propriety of removing abroad. It is desirable on every other account to determine how far the inhabitants of certain countries are exempt from the visitation of this calamity. Such information may assist us in estimating the influence of our own climate

and in guarding against any injurious qualities it may have. But as the preservation of mankind has never been judged worthy of those grand, systematic measures which are incessantly employed for their destruction, we do not possess a proper stock of comparative knowledge: nor could it perhaps be acquired but by the public establishment of *missionaries of health* in different regions of the globe, or by unremitting efforts on the part of opulent bodies. In the scattered and discordant testimonies of casual observers it is difficult completely to acquiesce. Those, whose opinions we find in books or hear in conversation, have seldom made it their study to acquire an accurate idea of the proportional prevalence of disorders in various countries; and their decisions sometimes seem formed from the vague recollection of the moment. Men will often perforce appear not ignorant of things they have never considered.

On questioning medical practitioners from the West Indies, I have sometimes been informed that consumption is by no means an infrequent disease, whereas others (and particularly persons not belonging to the profession) assert that it is almost wholly unknown, in confirmation of which opinion medical writers may be quoted.

The striking (and as I conclude from internal evidence) exact picture of the Creole women, drawn by the historian of the Antilles, induced me to propose to him the two following queries. 1. *Whether, (as I had inferred from their other traits) they have not in general large pupils?* and 2. *whether (as is, I believe, the common opinion) they are not very liable to consumption on residing in England?* The answer, which runs as follows, involves Mr. Edwards's opinion concerning the fact I am considering: — "According to the best
" of my observation, I must answer both

“ of your queries concerning the native
 “ females of the West Indies in the af-
 “ firmative—I think a large pupil is a
 “ very general feature among them ; and
 “ I understand that they are very liable
 “ to consumption on coming to England.
 “ In their native country, consumption
 “ is almost unknown.”

“ Southampton, “ B. EDWARDS.”
 “ 13 July, 1797.”

Mr. Edwards's description of the Creole females I shall probably hereafter have occasion to quote. In the mean time his letter, when it is considered how categorically the last sentence is expressed, will go far towards settling the present point of enquiry. It is a case in which, I confess, extra-professional testimonies have great weight with me. There is no man of the most moderate information who does not know that in this country the ravages of consumption form part of the history of innumerable families. If the disorder were

not of rare occurrence in the West Indies, the fact could not be unknown to a person of Mr. Edwards's intelligence.

The observation, that among the negroes consumption is apt to succeed pleurisy, goes some way towards reconciling the differences of assertion, and seems to vindicate the climate, though at the expence perhaps of the practitioner. This variety of consumption at least scarce occurs here, but from mismanagement of the primary disease. Hence we are less in pain concerning it.

From the praises which antient and modern writers have bestowed upon Egypt for its salubrity, it may be presumed that consumption is little known there. The same observation will probably apply to Bengal and to all latitudes where a regular high temperature prevails. If dryness be added to constant heat, there will be hardly any exceptions.

Of PORTUGAL, ITALY, MADEIRA.

A physician who lately resided two successive winters in Portugal informs me that consumption is frequent among the natives ; and that at Lisbon it is a common expedient to send patients to the other side of the Tagus. His observations convinced him of the small efficacy of the climate ; and I hope that he will soon publish them for the benefit of his countrymen. The evidence of other physicians has generally, though not always, corroborated that of this observer. My own intercourse with invalids leads me to attribute much the greater part of the benefit, whatever may be received, to the sea voyage, of which the effect is seldom perhaps sufficiently distinguished from that of the climate.

The following instance occurred to me in the course of the present winter. I relate it because it probably leads to a just estimate of many of the cases in which it is said in the circle of a person's acquaintance: *Mr. — was dangerously ill of a consumption, for which he went to Lisbon and recovered.*

Lieutenant B. complained of a violent cough, which was attended with expectoration of purulent matter, with hectic fever and great emaciation; symptoms which he ascribed to hard service in Ireland. He had been advised to take a sea voyage, to which I encouraged him. He embarked for Lisbon, and within a day's sail of his destination, was taken by a Spanish cruizer. He was almost immediately retaken and carried back to England. His symptoms had subsided during his voyage out. On his return, which happened during the severe frost he was strong enough to work with the sailors, which he often did

for the sake of the warmth created by the labour, as he had been plundered even to his great coat. Had this gentleman arrived in Portugal and the removal of his complaint been permanent, which frequently is not the case though it may be suspended during a voyage, the fact might easily have been placed to the credit of the climate.

From the medical literature of Italy I conclude that we may rank consumption among the common disorders of that country. Italian physicians often make it the subject of their publications; and the numerous cases, which some of these authors have described, read precisely like reports concerning British invalids. The attack is at first, as with us, mistaken for a common catarrh and attributed to cold, operating on a scrophulous constitution. It often falls upon relations in succession. The histories of consumption frequently set out in terms like the following: "Carolo Bor-

“ghetti, aged 18, being employed in
“the winter in falling timber and having
“frequently heavy burdens to carry home,
“was suddenly seized with a violent
“cough, which he neglected as a com-
“mon cold.”—“Sig. Antonio Mora, of
“Riva, aged 29, narrow chested, had
“been affected in his youth with scro-
“phula. It was his custom to travel,
“and often on foot, however bad the wea-
“ther might be. In the beginning of
“1787, after one of his usual journies,
“he was attacked with a violent cough,
“which he neglected as a common cold.”
—“The daughter of Sig. Antonio Mu-
“zio, aged 18, of a full temperament and
“of perfectly healthy parents, frequently
“exposed herself, after dancing, to sud-
“den cold.” — (*Canella Osservazioni in*
Eyerel's abridged translation. Vienna. 1795,
cases 25, 33, and 35 of the 1st series) Cases
6 and 36 are of sisters: cases 29, 30, 31,
32, of brothers and sisters, the two first

destroyed by consumption, the two others by serophulous diseases.

What greatly strengthens the opinion, in support of which I make these references, is a remarkable controversy that has taken place within these few years. Dr. Salvadori published in 1787 a plan for the treatment of consumption which he professed to have combined from the works of Hippocrates, Bennet, and Sydenham (*Del morbo tifico, libri tre di Matteo Salvadori, Trient. 1787, 4to.*) Discarding medicine and all exactness of regimen, Salvadori directs his patient in the morning to climb, as quickly as he can, up some eminence, till he is out of breath and bathed in sweat and then to place himself near a large fire to increase the perspiration. He is afterwards to change his linen, and gradually withdrawing from the fire to partake freely of salted meat and wine. No work upon consumption has probably ever excited a greater sensation in England than this did

in Italy. A host of adversaries took the field against Salvadori. Some criticised his quotations and endeavoured (I think successfully) to shew that he had perverted the sense of the authors (*Disamina sulle autorità d'Ippocrate, de Sydenham e di Bennet, dal S. Dott. Salvadori in suo favore recate, Mantova 1791*). Others opposed him by clinical facts, as Dr. Canella in the work before quoted, to whom Dr. Fontana and Dr. Ribbia associated themselves.

No acquisition, I fear, accrued to medicine from the dispute. But it seems to shew what great interest was felt in the subject both on account of the fatality and frequency of the disease. The agitation, even in modern times, of the question concerning the contagious nature of phthisis, in which Bertrandi (*on ulcers*) Castellani (*Insussistenza ^{contagio} della Tisichèzza*, 1777) Narducci (*sopra il contagio della Tisichèzza*, 1785) and writers in the *Magasino Toscano* take opposite sides, tends to confirm the same idea.

Considered therefore with regard to their influence on the natives, the climates of Portugal and Italy do not form so very striking a contrast with our own. Countries warmer than Great Britain in winter, and equally warm, may be in a slight degree beneficial. But we can rarely expect temperature alone to heal ulcerated lungs, or to prevent ulceration when it is very near at hand. The number of permanent recoveries bears but an exceedingly small proportion to the whole number of phthical persons sent abroad. And when we abstract the advantages from failing and from travelling by land, very little will remain to the climate. From June to October, the English air is probably as salutary to natives as that of any country in the world. But we never observe during our summer any spontaneous cures of confirmed consumption. It is true that in July, August and September the foundation of the disorder is laid much more

rarely than in the other months. And a country, where the weather is such in winter, as it generally is with us from the summer solstice to the autumnal equinox, would be a residence highly proper for persons, disposed to consumption, and would afford those who had been recovered by a sea-voyage or any other cause, some security against a relapse. But few spots in Europe enjoy in winter a constant kindly temperature with a dry air, though I understand the south of Spain approaches more nearly than any other, not even Hieres excepted, to this description. But our climate with proper care will not perhaps in general counteract the operation of an adequate remedy, whenever that shall be discovered.

The advantages of Madeira as a residence for the consumptive are far from established. In phthisis far advanced I have known recovery the consequence of a voyage thither. But all the symptoms had disappeared before the patient's arrival. I have

it from a medical friend, who resided there some months, that scrophula and consumption are by no means uncommon. Two, as I am credibly informed, among the British settlers—persons who did not go out as invalids—have died of consumption within these twelvemonths. A resident lady of delicate health has lately fallen into the disorder. This proportion would be reckoned not inconsiderable even in Britain. So little of preservative power does the island possess! Indeed the wetness of its atmosphere appears to counterbalance the admirable uniformity of its temperature. The incommodioufness of its roads and other disadvantages are sufficiently known. Dr. Gordon, under whose care some consumptive patients were placed in Madeira by Sir John Pringle and others, (as appears from his letter, published in Dr. Read's treatise on consumption) discouraged the practice.

CLASSES EXEMPT.

As I cannot but feel apprehensive lest some of my readers should conclude from the titles of the sections, immediately succeeding, that they have no interest in the contents, I think it necessary to apprize them that I hope to be able to produce a series of facts which shall connect the state of health of the rudest with that of the most refined among our countrymen, and clearly unfold the causes of the striking difference that subsists.

This part therefore of the enquiry will bring us immediately to the knowledge we want. For if it can be ascertained that whole descriptions of persons, agreeing with one another in certain particulars, enjoy a nearly total exemption, and that in these very particulars they differ from

the descriptions that suffer most, we shall have determined with great probability some of the remote causes. The reasoning will be strongly corroborated if it shall be found that those who in relation to the same particulars, come nearest to the exempted classes, are proportionally exempt.

BUTCHERS.

In a letter from Dr. Withering written in 1793 which he allowed me to publish, it is remarked that "the only classes of men he had yet observed exempt from the disease (consumption), are butchers and makers of catgut. They both pass much of their time amidst the stench of dead animal matters, the latter very much so; the former live chiefly on animal food, and are much exposed to the

inclemencies of the seasons, whilst the latter live as other manufacturers, and work under cover in close and rather warm buildings. These people are always sleek, often fat, and the rosy bloom of health adorns their cheeks." (*Letters from Dr. Witbering, and others, to Dr. Beddoes, Johnson, 1793.*)

Concerning cat-gut makers no subsequent information has reached me; but I have since heard soap-boilers claim a similar privilege. In the case of the numerous tribe of butchers, the fact if true, could, I thought, without difficulty be ascertained. The following is the result of my attempts to ascertain it.—I requested a gentleman accustomed to the butchers of Bristol, to examine them generally concerning the healthfulness of their calling, and by no means to put his questions so as to prompt a negative regarding consumption. The notes he took run literally thus:—

“ July, 1797, S——, has been in business nine years—never had but two persons in that time employed in the slaughter-house, both of them always in health; live on beef-stakes, mutton-chops and other meat as often and as much as they please; drink large quantity of malt-liquor, seldom spirits.

G——, thirteen years in business,—
“ Lord bless you Sir, die of a cough! why I never heard of such a thing; every one knows that the “ smell of meat ” keeps off infection. Why, my husband has often taken sheep into gentlemen’s bed-chambers, and if you will read, you will find when the plague was here, all the butchers escaped—never knew any of our men a moment ill.”

F——, a well-informed man; had a man die about ten months ago of a consumption, coughed exceedingly; got his illness by straining himself in carrying quantities of beef, and then he took to

spirits and drank them most excessively :
“ he died certainly of a consumption :”
worked little in the slaughter-house after
this accident. Wages 5s. per week, and
every thing found them ; plenty of beef
and mutton at all times of the day. “ I
am sure the breath of the beasts is good,
no people are so free from disorders as we
are.”

B——, thirty years in business, does
not recollect any man dying in his service.
He has had three or four apprentices at a
time ; they live well ; eat hot meat for
breakfast, broth and onions ; knew a boy
die next door in the slaughter-house, but
in consequence of ill usage ; he never had
any thing the matter with himself.

B——, fourteen years in trade. “ I never
heard of a man dying of a consumption
who was a butcher. After a sheep is dead,
it is very wholesome to swallow the steam,
the smell of meat keeps us from disorders.”

M——, twenty-five years in trade,

had a son nineteen years of age die of a consumption, he did not attend to the business but to the farm; never had any one die who worked for him. Has now same men who have been many years with him, and never ill a moment; drink very hard. "Sad drunken beasts all of them." Knew the man well, alluded to by F. he had a shocking cough, and was always drinking drams.

I find there are about five hundred persons here employed in the trade. I have examined a number of inferior butchers whose answers I have not sent. They tally so exactly with those of the best informed."

From Dr. Pearson of Birmingham, I received the following answer to a general query concerning the personal condition of butchers: "Agreeably to your desire I send you the result of my enquiries concerning the diseases to which butchers are *most*, and to which they are *least* liable.

Among the *first* may be reckoned obesity, hepatic obstructions and sometimes hepatic inflammation; apoplexy: among the *second*, phthisis pulmonalis and typhus.

Though pulmonary consumption occurs less frequently among this class of men than among those who follow other kinds of business, yet they are often attacked with catarrhs. I remember also an instance or two of pleurisy and peripneumony; and one of whom I sometimes purchase meat is likely to be an exception to what I have before remarked, there being in him some tendency to consumption.

Where I have noticed asthma in butchers, it has generally been the concomitant of obesity."

From Mr. Creafer, Surgeon of Bath, to whom I put a general question concerning the disorders to which the butchers of that city are subject, I received the following answer: "In consequence of a

suggestion from you which I suppose to be connected with some former opinions on phthisis, I have been at some pains to enquire what were the particular conditions both of the health and diseases of butchers, as they are a class of men whose occupations are in many respects under different peculiarities.

I cannot find that they are liable to any very peculiar affections either acute or chronic, but there are certainly some of the diseases of both kinds to which they are less than usually liable. Of the acute diseases they have rheumatism, fever and catarrh, from the cold and moisture to which they are continually exposed, and the consequent changes of temperature. The rheumatism and fever are generally mild, and the latter does not seem to be of the kind produced by putrid vapour, which they occasionally inspire when the animal substances around them putrefy, but to which they become probably insen-

sible by habit, as nurses in hospitals are to the common contagion of fever. It is an undoubted fact, that catarrh in butchers scarcely ever ends in phthisis : I have ascertained this by enquiring of some of the oldest amongst them, who were perfectly capable of recognizing the disease.

They are exposed to the common chronic diseases dependent on the use and abuse of fermented liquors, in which they generally indulge freely ; but they think themselves less proportionably injured by these excesses than other artificers ; whether this is hypothetical, I cannot decide, but it is their own general declaration.

The numbers of whom I have enquired are sufficient to decide on the average frequency of scrophula, and this is certainly comparatively rare, as I have examined several who possessed the temperament which appears to constitute the predisposition, but in whom the disease did not exist ; they asserted also the rarity of its

occurrence. Quere---has this any connection with the supposed scrophulous nature of phthisis?

As the men are generally employed in the slaughter houses, and as they are not so frequently the subjects of cancer as women, no conclusion on this point can be drawn.

Butchers, in their general health, are vigorous, and they have almost invariably the appearance of being well nourished; their children are commonly fair, healthy, and ruddy.

The observations I have made on this class of men are certainly inconsiderable, but they may excite further investigation into the peculiar conditions of certain classes of men who are exposed to the operation of known causes. Some of those to which these people stand exposed may be readily perceived. Mr. Plenck of Vienna in his hygrology of the fluids of the body, says, that the gas found in some of the cavities, and in the interstices of the cellu-

lar substance of the body, is carbonated hydrogen: this therefore, in the dissection of carcases, must be given off, as is also a considerable quantity of halitus of the different fluids of animal substances: these combined must considerably reduce the purity of the atmosphere; but I think we are not quite sufficiently acquainted with the effects of carbonated hydrogen to determine the consequences of its continued application to living animals.---If I may introduce a fact which is rather foreign to the present subject,—I found in one instance where a patient died of a disease for which it was constantly administered, that the muscles were perfectly flaccid after death, though I had no opportunity of opening the body to discover if the blood was coagulated. This I much wished, as it would have contributed to establish, or to create a doubt of, the truth of Mr Hunter's opinion, that rigidity of muscular fibres after death, and the coagulation of

the blood, were connected actions. The observation of this fact may also in some degree elucidate the action of carbonated hydrogen.

To return to my immediate object ; it is evident that butchers are not only surrounded by an atmosphere of peculiar combination, but that they are within the sphere of absorption, by the hands and also the arms, of animal matter. The power of the external absorbents in nourishing the body, and in the consequent animalization of the substances absorbed, is fully established. To the operation of these causes, different effects may be owing, perhaps more extensive than I have observed, but which I should be happy to have investigated, and particularly how far the continued inspiration of carbonated hydrogen may contribute to the formation of fat in the living body, of which it constitutes the principal component part."

I thought it of importance to obtain a

state of facts from Cork : and a friend was so obliging as to apply to Dr. Gibbings and Dr. Ronayne. Both exactly agree in ascribing exemption to butchers. The letter of Dr. Ronayne, who seems to extend the security in some sort to the women, runs thus : " From my own observations, and from the opinion of the oldest of our dispensary physicians, I can assure you that the people concerned in the laborious part of the slaughtering business, are not subject to phthisis pulmonalis. I have been near nine years in a very extensive practice, principally among the lower orders of people, and I do not recollect to have seen many cases of consumption from diseased lungs among the working butchers, or *their women*. The complaint of which the greater number die, is the bloody flux, attended with, or followed by, a diseased liver, which we attribute to the quantity of newly distilled spirit they drink while at labour, and to the very bad provisions with which they are fed."

Whatever probability may arise from the concurrence of so many testimonies, I could still wish the enquiry to be pursued in London. If it were there attended by a similar result, we should then, I think, have full assurance of the fact. Occasional vestiges of the same observation may be traced in foreign writers. The author of a dissertation on the propriety of placing phthifical patients in slaughter-houses (*Utrum in carnariis commoratio phthificis prodesse possit? Monspelii, 1788, auctore C. F. R. Nadaud de Villette*), tells us he was led to the idea by observing the healthiness of the butchers, their wives, and families, at Montpellier.

FISHWIVES.

In the 16th volume of the *Statistical reports of Scotland*, pp. 15—20, the follow-

ing facts are related : “ The whole produce of the gardens (in the parish of Inveresh) together with salt, and sand for washing floors, and other articles, till of late that carts have been introduced, were carried in baskets or creels on the backs of women, to be sold in Edinburgh, where after they had made their market, it was usual for them to return loaded with goods - - - - - This employment of women - - - - - has occasioned a reversal of the state of the sexes in this parish, and has formed a character and manners in the female sex, which seems peculiar to them, at least in this country - - - - - The women who carry sand to Edinburgh have the hardest labour, and earn least. For they carry their burden which is not less than 200lb weight every morning to Edinburgh, return at noon, and pass the afternoon and evening in the quarry, digging the stones and beating them into sand.

The *Fishwives* as they are all of one class.

and educated to it from their infancy, are of a character and manners still more singular than the former, and particularly distinguished by the laborious lives they lead. They are the wives and daughters of fishermen who generally marry in their own cast or tribe, as great part of their business, to which they have been bred, is to gather bait for their husbands and bait their lines. Four days in the week however they carry fish in creels to Edinburgh, and when the boats come in late to the harbour in the forenoon so as to leave them no more than time to reach Edinburgh before dinner, it is not unusual for them to perform their journey of five miles by relays, three of them being employed in carrying one basket and shifting it from one to another every hundred yards, by which means they have been known to arrive at the fish-market in less than three quarters of an hour. It is a well-attested fact that three of them not many years

ago, went from Dunbar to Edinburgh which is twenty-seven miles, with each of them a load of herrings on her back of 200lb. in five hours---they sometimes carry loads of 250lb.

There seems to be no employment that conduces more to health and good spirits than theirs. Some of them have been brought to bed and have gone to Edinburgh on foot with their baskets within the week. It is perfectly well ascertained that one, who was delivered on Wednesday morning, went to town with her creel on Saturday forenoon following."

On the perusal of this passage, I concluded, for reasons which will hereafter fully appear, that the fishwives, on comparison with their neighbours, would be found distinctly less liable to consumption. My endeavours to procure exact information have been remarkably successful; and I shall here give, what I have collected entire, being desirous to deliver sound

materials to my successors in this important labour, though I should fail in disposing them properly myself. Dr. Roget, who was at the trouble of a personal enquiry, transmitted to me the following account: "My enquiries respecting the prevalence of pulmonary consumption among the fishwives of Musselburgh, have been, from various circumstances, delayed for a much longer time than I could have wished. From what I have at length been able to collect, I have reason to believe that this class of women is less subject to the disease than the generality of poor people in this part of the country. I have made enquiries among the fishwives themselves, and was in particular informed by one of them, who, I am told, is one of the oldest in the place, and who by her own account was married in the year 1746, that the occupation they follow is, on the whole, a healthy one. They consume a larger proportion of animal food than their neighbours, and

they do not live much upon fish. Many of them are intemperate in the use of spirits. A smaller proportion of them arrive at old age, than of the other classes of people. The fishermen appear to be less liable to illness, and to attain a greater age than their women. The complaints, to which the latter are most subject, seem to arise from the excessive fatigue they are obliged to undergo: it does not, however, appear that they readily fall into consumption. Few of them die at the phthifical period of life. Coughs, spittings, pains in the chest, &c. I was told were very frequent; but from what I could learn they were chiefly prevalent among those at an advanced age. The husbands fall frequently under a stroke of palsy or apoplexy, victims to their own intemperance.—This account corresponded with that of several other fishwives with whom I conversed. They live much among themselves; they are a shrewd and intelligent set of people;

and from the little intercourse they have with their neighbours, unless in the way of trade, their manners are in many respects peculiar."

Mr. James Williamson, surgeon at Prestonpans, has communicated the result of his observations, in a letter dated July 27, 1798 : " Respecting the general state of health of the fishwives about Prestonpans and Cockenzie, I can say from my own observation for these several years, that in general they enjoy as good a state of health as any other persons in the neighbourhood. The weight of their burdens varies according to circumstances : it is almost incredible the burdens they sometimes carry, and with great agility and quickness. Their diet consists principally of fish and butcher meat, with small beer, strong ale, porter, and very often whisky. As to their cloathing and mode of life, they do not differ materially from their neighbours.

There are no disorders to which they are particularly subject, nor are they exempt from those diseases to which other people are liable. They are sometimes troubled like other people, with catarrhal affections, but these I cannot immediately impute to their peculiar way of life; and I do not recollect a single instance of any of the fishwives carrying fish to Edinburgh having consumption.

With respect to their living a longer or a shorter time than their neighbours, I have made particular enquiry, and I do not find there is any difference."

In a letter from Mr. Kerr, secretary to the general post-office, Edinburgh, I find an article respecting the health of the fishermen. Mr. Kerr also agrees with my other correspondents, respecting the diet of the fishing families: "Upon the receipt of your letter of the 26th of June, I went to the fishing village of Newhaven, where I was informed that consumption

is hardly known among the fishermen there. One instance only was cited. As to diet, it consists chiefly of butcher's meat boiled, so that their families as well as themselves may have the benefit of the broth, which is mixed with various vegetables, of which they partake largely. As to fish, they use it so very sparingly that it can hardly be considered as part of their diet. They use malt and spirituous liquors, but not to excess, being considered as a sober and industrious people. I shall endeavour to get further information."

Mr. Kilgour, Surgeon, Musselburgh, in his very distinct answer (of July 11th, 1798) to my queries, not only confirms the accounts of my other correspondents, but, as I shall have occasion afterwards to shew, communicates particulars of great importance to the whole investigation : "I have (says Mr. Kilgour) just now before me your letter, enquiring if pulmonary consumption be a disease to which people

under this cattarrhus senilis, have all the characteristic symptoms of phthisis pulmonalis, viz. exquisitely formed hectic fever, and purulent expectoration, some considerable time before their death: but such cases are very rare. I wish here to have had it in my power to have given you an account of the state of the lungs from dissection, but the liberty of inspecting the bodies being denied me, I cannot. Like all other people of a similar rank of life, who have great gains from their labour, they live well, but I do not believe they use in their food a great deal of fish, of which being excellent judges, they chuse principally the lightest and most delicate. While they do not eat a great number of fish, they live freely upon butcher's meat, and indulge after their meals in drinking copiously of porter, the more generous ales, and spirituous liquors; indeed were they not to live well, it is impossible they could support the fatigue they undergo.

From this manner of living it is easy to be seen the habit of body, and the strong predisposition it must induce to peripneumonia notha, so frequently fatal to them in advanced life."

SAILORS, WATERMEN.

In 1792, I published some among a number of conjectures, which had occurred to me several years before, concerning the possible chemical origin of the sea scurvy, and other complaints. I had been led to suppose, that notwithstanding their exposure, sailors must be comparatively little liable to consumption. Subsequent enquiry obliged me to abandon the hypothesis upon which my inference was founded. But there is the authority of the present physician to the channel fleet for believing that the fact really happens

following the fishing trade are more or less subject than others. After a practice of thirteen years in this place, I can with confidence say, that it is a very rare complaint among them, and scrophula, supposed to be so much connected with it, is hardly with them ever known, although with others a very general disease here. From being subject to violent and laborious exercise, to frequent heats and sudden cools of the body, with much exposure to wetness and moisture in stormy weather, these people (the fishermen) are peculiarly liable to pneumonic inflammation, catarrh, rheumatism, and cholic; and although both pneumonic inflammation, and catarrh, are strong exciting causes of consumption in those predisposed to it, yet in almost no instance have I found this to happen with them. What I have now said concerning the occasional causes of their diseases, refers principally to the men of this class of people, when following

their business at sea ; but the women are subject to the same complaints from other circumstances attending their trade. In order to sell the fish their husbands have caught, they in cold, warm, wet, or dry weather, carry from this place to Edinburgh an immensely heavy load of them on their backs, with a celerity which is astonishing ; and upon this occasion a general race takes place, in order first to gain the market for the highest price ; and this violent exercise at all seasons of the year, necessarily produces all the diseases arising from cold. From these frequent colds, their old people are peculiarly liable to that increased afflux of fluids to the lungs, which so generally takes place in advanced age ; and they, upon being peculiarly exposed and taking cold, frequently die of peripneumonia notha. This, I cannot help observing, most frequently happens to their women. In some very few instances, I have seen such old people, who had long laboured

daily consumption amounting to about three and a half pounds of butcher's meat, with bread and strong beer in proportion ;-- that their labour is always considerable, and that part of it which consists in unloading the keels up into ships, excessive, and would be insupportable, but for the ale or beer that is served to them by the shipmasters, according to established rule ;-- that (contrary to what might be expected) there are many robust old men among them ;---that no class is more healthy ;--- that the *labouring* period of a keelman is from forty to sixty years, and often more ;--- that, probably on account of their insulation, they are less liable than others to epidemic complaints ;---that rheumatism in spring and autumn is their chief complaint ; and that this is less frequent since the use of flannel next the skin. From the whole tenor of the account, as well as its silence with regard to so prominent a disorder, I conclude that to this race of

watermen, consumption must be little known.

“ Stable-boys and grooms (Dr. Withering observes to me), who live much in an atmosphere loaded with volatile alkali, are I believe, but little liable to consumption; but this opinion ought not to be fully admitted without the support of more extensive observation.---Snuff-taking, says the same correspondent, is so little the mode of the present day, that my opportunities of observation have been insufficient. I have asked the question of some of our medical friends at Edinburgh, where snuff-taking is more general than with us, but have had no satisfactory reply---I have recollection of one snuff-taker who caught the disease from a close attendance upon his brother, which does not tell in favour of such people being exempted.”

I submit it to observers, whether men-servants, gardeners, the families of such small farmers as cultivate their lands, and

to be so. " Dr. Beddoes (says this intelligent observer), appears to me perfectly correct in supposing that seamen are very little troubled with phthifical complaints. Consumptions can scarcely be reckoned among their diseases, although five-sixths of the seamen in a man of war are of an age within the phthifical period. Some cases of consumption have lately come under my observation, but they were few, compared with the number of the fleet and the bad weather they had before experienced;" (*Trotter's medical essays*. 1795. p. 30). From the small proportion of phthifical seamen, ought to be excepted, as not constitutionally phthifical, many whose lungs become ulcerated from external violence. From the nature of a sea-faring life, this portion must, I should imagine, be considerable. By Dr. Lind, who was long physician to a naval hospital, we are informed, that of 360 consumptive patients whom he attended within two years, the

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SAILORS.

complaint was brought upon one fourth by falls, bruises, and strains, received a year or two before (*Lind apud Rush med. enquiries* 11, 89.) It is well known that sailors are very subject to catarrh, to rheumatism, and other disorders, the produce of temperature.

On the authority of an interesting manuscript on the keel-men (or coal-boat-men) by Mr. G. Grieve, of Newcastle upon Tyne, I have placed watermen under the same head with sailors. In this paper it is related, that the common food of the keel-men, for more than a century past, has been boiled mutton, or roasted lamb in their seasons, the fattest which the market could afford, dressed once or twice a week, and eat cold on board ;—that they use the finest wheaten bread ;—that fish forms but a small part of their diet ;—that the influence of the tides upon their employment renders their meals irregular ; but that they eat the more on this account, each man's

nearly consume its produce themselves (by which description some remote districts are still cultivated) are not among the persons less liable to consumption. That small farmer's families enjoy this advantage in some degree, I have reason to suppose from my own observation in the vales about Rhadyr in Radnorshire, where their labour seemed moderate, and their food nutritious. The enquiries of a friend in the country about Tan-y-bwlch in North Wales, countenance the same opinion. But it requires a stricter scrutiny. I have in vain endeavoured to procure more correct information from professional persons in the former district; and shall be very glad if by starting the question here, I should procure a satisfactory solution.

I shall below endeavour to analyze the foregoing facts. And wherever persons shall be found, approaching to the classes I have enumerated, in the circumstances common to them all, I expect

with confidence, that they will on examination, be found equally free from consumption.

**PERSONS MORE LIABLE TO
PHTHISIS.**

We have seen how often external injury produces the disease. It has been frequently observed to arise from hard bodies, as bone, needles, fragments of the shells of nuts and of other fruits, received into the wind-pipe. The fate of stone-cutters and needle-grinders is well known. Linnæus (*Amoen. acad.* viii, 159) says, that the cutters of grinding-stones almost all die phthifical before their thirtieth year. The tenuity of the hard powder inhaled by the workmen seems not to diminish its pernicious quality. Dr. Withering (*letter* p. 15,) observes that casters of fine brass-work

much oftener die consumptive than "any set of artists in Birmingham." Playing on wind-instruments is known to injure the lungs. Fifers on board ships of war, who accompany the drum at stated hours, and play quick marches when any piece of duty is going on, that requires hoisting, are apt to become consumptive. (*Trotter's essays*, p. 29). Miners in some situations, whether from external injury or cold, experience the same fate. But slight notice of such facts is sufficient. Safety lies in change of occupation, and it is in vain to think of safety while men are bound to such as these by real or imaginary necessity. My search is after causes more insidious; and if it be ever so successful, I cannot expect that its benefits will extend much beyond the class whom their wealth leaves free to choose a mode of life.

To prevent groundless alarm, it should be added, that japanners, who work in an atmosphere of resinous vapour, are not

more subject to consumption than others. The same is proverbially said of millers; so that powders exceedingly soft, or easily decomposed, seem not, either directly or indirectly, to occasion ulceration of the lungs.

It is of importance to observe, that artificers, whose occupations and habits are opposite to those of the persons mentioned in the preceding sections, stand also in an opposite relation to consumption. It is perfectly well known, that taylorers, glovers, shoemakers, weavers, spinners, carpet-manufacturers—all in short, who follow sedentary occupations in confined rooms, whatever be their habitual posture, or the state of the atmosphere they breathe with regard to small floating particles—are extremely liable to this fatal disease. I could mention places which have been in bad repute on account of their situation, but of which, when circumstances have been accurately explored, it has appeared that

confinement and inactive employments have given rise to their endemic pulmonary disorders (Agassiz *Dis. de causis phthiseos localis frequentioris occasionalibus Erlangae*, 1791).

ANIMALS CONSUMPTIVE.

The same law extends to brute animals. Some brute animals, as dogs, seem (unless under very uncommon circumstances) by some unknown peculiarity of their constitution, exempted from consumption. Others, as cows, are liable to this complaint; and when they are kept in certain situations, they suffer quite as much as the human species under similar circumstances. The fact has been very accurately ascertained with regard to the milch-cows

of Paris. (*Essai sur la maladie, qui affecte les vaches laitieres des faux-bourgs et environs de Paris; par le C. Huzard, veterinaire. Paris 1794*). The cows, during the journey from the pastures of Normandy, or French Flanders, suffer greatly from over-driving, and from the cruel methods employed to make the udder appear preternaturally large. From the time of their arrival, till they cease to be milked, they are obliged to stand on one spot in the cow-house. In the city, the cow-houses are extremely low, and the animals are so crowded, that they can neither turn nor lie down. By constant standing, without exercise, the legs grow crooked, and the creatures not being able to stand perpetually, at last fall upon their knees, in which position they remain. Frequently the building has no window for admission of fresh air, the door is hardly high enough to admit the animal, and is nearly blocked up by dung. The diet is as wretched as

the quarters, and the water such as to be frequently refused.

A very usual effect of this treatment, (for all the animals that fall sick do not suffer exactly alike), is a hollow cough, with difficulty of respiration, fever, emaciation, and death. On dissection, the lungs are found to be ulcerated, and full of tubercles. The offspring is liable to the same complaint, and in conformity with an opinion respecting consumption in the human subject held by some physicians, many account it contagious.

For the reader's satisfaction, it is right to mention, that M. Huzard is respectably known by several publications on the complaints of domestic animals, and that an official situation enabled him to ascertain the facts related in his *Essay on the distemper of the Parisian milking cows*.

Dr. Soemerring, in his german work on the difference between the Negro and the European in bodily conformation, describes

(pp. 73—77) three cases of blacks, affected with inflammation, hardness, and ulceration of the lungs and the contiguous lymphatic glands; and adds, that he had on dissection, found two apes and an elephant similarly affected. It has been remarked by other authors, that apes, in our colder latitudes, are affected by scrophula and consumption; disorders to which we have no information that they are subject in their native climates.

Mr. Carlisle, one of our most distinguished anatomists, has favoured me with the result of his observations on apes, and with some remarks on consumption, which as they are contained in the same paper, I shall not disjoin. "I have often, (says he in a letter, dated July 30th, 1798), dissected the monkies and apes, which had died at Exeter 'Change, with more minuteness than is necessary for the mere purpose of ascertaining the probable causes of the creatures' death, because I have

made many preparations of them to exhibit the course of the blood-vessels, &c. I hardly remember to have examined one monkey or ape that was free from scrophulous structure in the lungs: most of them had evidently died of true consumption; several had scrophulous ulcers upon lymphatic glands, abscesses of the same description, and most of them had the mesenteric glands affected with the same disease. I have often seen the creatures, when alive, emaciated, coughing, and expectorating matter, which however only exudes from the sides of the mouth, as they do not seem to eject it. They also often swallow the pus, or rake it out of the mouth with their paws. The same difficulty of breathing as is observed in the consumption of the human body, is equally noticeable in monkeys.—I have reason to believe that your zeal for improving medicine will induce you to excuse me for adding a few straggling suggestions on this subject, and

to accept of them in the same spirit with which they are offered. I think my experience in the observance of diseases, authorizes me to conclude, that few persons afflicted with scrophulous affections of the superficial lymphatic glands of the large joints or bones (when scrophula attacks these parts early in life), are liable to consumption of the lungs.—This may be contrary to your experience; but I have been often disappointed with finding the lungs sound when scrophula had ravaged the whole set of superficial lymphatic glands, and all the spongy bones which are remote from the heart. I think I have also observed two distinct species of disease in the lungs of consumptive persons; the one spreading through the whole substance of the lungs, the other confined to the lymphatic glands at their root. The former patients have more cough, pain, and shortness of breathing, so that the disease is soon understood, the latter have the disease proceeding insi-

diously, with little pain, difficulty of breathing principally observed after exercise: the termination of this last species is also remarkable. It either carries the patient off by a violent and sudden expectoration and hectic, or the matter is discharged, the sore heals, and the disease seems, although unexpectedly, to have disappeared. But perhaps I am telling what is told in every pamphlet on this subject, as I have no leisure for such reading, and more observations on this point may be on that account useless. Again—It has not occurred in my practice to see any good effects from medicinal applications to scrophulous sores: keeping the parts in a warm and equable temperature, and exciting an increased action of the blood-vessels in the skin of the adjoining parts, are the only methods which I have observed to produce any improvement in the sores. Sometimes scrophulous inflammations are rendered less active by indu-

cing more powerful inflammations in their vicinity. This disease appears to my mind, in its origin, connected with a diminution of the animal heat, either of the whole body, or parts of it. There is a debility in the powers which circulate the blood; there is a defect in the reciprocal duties of the arterial and absorbent systems; coagulated lymph is deposited in weak parts, where it is neither perfectly organised by arteries and veins, nor modelled in its form and quantity by the absorbents; in this state it remains out of the reach of the actions of the living body, and undergoes the same sort of change as coagulated lymph is known to do, when retained for a length of time in circumscribed living cavities. This cheesy substance, in process of time, becomes stimulating, produces inflammation, secretion of the surrounding parts, its own solution, &c. Perhaps the attention of physicians may be more effectually employed in preventing this disease

among its probable victims, than in curing it. I understand, from a very informed and correct observer, that the true Dutch people hardly know scrophula in any form, but the other low country people, who imitate French dress, are very liable to all its appearances. The gilders in London are very subject to consumption of the substance of the lungs, but no other scrophulous symptoms. They work in heated rooms, and are often induced to expose themselves suddenly to cold and damp. I am told six out of seven die in their apprenticeship :”—

Upwards of a year before the date of Mr. Carlisle's letter, I had received a full account of the degree, in which the Dutch and English are comparatively subject to pulmonary affections, from Dr. Cogan, a physician, who from long practice in London and Rotterdam, has had superior opportunities of observation, and whose ability to use them properly does not require

any voucher. Dr. Cogan's account will be seen very fully to corroborate the information obtained by Mr. Carlisle. It also contains circumstances of the utmost importance to the whole investigation. "I remember (says Dr. Cogan) to have mentioned, when I had the pleasure of seeing you, that the Dutch, and even the English, who had resided any considerable time in Holland, were forcibly struck with the coughs, whether catarrhal or consumptive, so universally prevalent in this country, in almost every season of the year. At church and at the theatre, devotion and pleasure are always interrupted, and sometimes totally destroyed, by incessant coughs, expectorations, &c. while in the largest assemblies in Holland, instances of a similar kind are scarcely known. This very striking difference I have been induced to ascribe to the contrast observable between the two countries, in the construction of their habitations, and in the peculiarities of dress.

The majority of the houses in Holland, even at the present day, are the reverse of what we should deem *comfortable*. The rooms are large and lofty; the separation betwixt the upper and lower apartments is made by painted boards merely, which, if they were not covered with mats or carpets, would transmit the light as well as air. The generality of the Dutch are not accustomed to the luxury of a *cieling*; nor is the tile-work of the garret roof secured, but by common lath and plaister. Those who are not sophisticated by modern manners seldom indulge themselves by the side of a large fire. Many of their rooms have no chimnies, and in many that have, generations have passed without a fire having been once kindled in them. Their fires are, both from oeconomy and choice, made as small as possible. Five or six turfs, about the shape and size of our bricks, which is the usual fuel of the country, are arranged in the form of a chimney, and a

glowing coal placed at the top, by which method the inward surfaces are enkindled, and the turfs are half consumed before any share of a very moderate heat is received in the apartment. The females never approach the fire, but generally place themselves at the greatest distance, contented with a small coal of the turf, completely charred in an earthen pot filled with ashes to moderate the heat. This is placed in a wooden box with a perforated surface, and applied to the feet. Supported by this consolation, they prefer placing themselves at the greatest distance from the fire, generally by the windows, which (by the way) from their immense size, greatly contribute to the coolness of the rooms. A Dutch woman feels herself insufferably oppressed in an apartment we should deem moderately warm, nor can she withstand a large coal fire in a close apartment for the space of five minutes. There are many disadvantages, however, attending the perpetual

use of these *stoves*, as they are called, among which the most obvious and habitual, is the extreme coldness of the feet: an evil, which as they are not fond of exercise, can only be remedied by application to their beloved stoves.

In villages and smaller towns, that are less modernized, the houses are, to a stranger, insufferably cold and comfortable. As the common or family room, is very liable to smoke from the bad construction of the chimney, the door is either left entirely open, or kept a-jarr by means of a plank fastened at the side, so that air may be admitted from the top of the door. From this room, light is frequently received into the cellar, or some adjacent room, through open rails of iron-work, or carved wood. To these comfortable circumstances, as we should deem them, may be added, a spirit of cleanliness, which indicates itself in perpetual white-washings and ablutions, which are divided into

annual, quarterly, monthly, and weekly, according as they are of greater or less extent, and their habitual use of damp and unaired bed linen.

To counteract the discomfiture and chill naturally arising from these sources, the Dutch envelope themselves in cloathing, of which a stranger can entertain no conception. Most of them wear two shirts, and a flannel waistcoat with sleeves, which they call a *corstrok*, between them. The *corstrok*, calecons, or drawer, with woollen stockings, are the constant companions of both sexes, night and day; to these are super-added a *gezontbeid*, or small waistcoat without sleeves; it has its name from its being supposed conducive to health. Some surround their bodies with wrappers of thin woollen cloth, several yards long; to these succeed the coat and waistcoat, as with us, the latter always with sleeves; and when they go into the cold air, they add either a pellisse, or a *schautzlooper*, which is made

of thick cloth, lined with woollen. Their females are proportionably warmly clad, and as to their infants, they are absolutely made about the shape and size of a moderate bolster, before they dress them in garments that are to meet the eye. This mode of dress is certainly unfavourable to cleanliness, with all the salutary consequences attending that virtue, and they are too much deprived of the invigorating stimulus of atmospheric air applied to the body; but they are defended against the class of disorders proceeding from the cold and dampness of their houses, or from the sudden transitions arising from a cold atmosphere and warm apartments. In short, by the extreme airiness of their rooms, and warmth of their dress, they are secured against those extremes of heat and cold, to which the inhabitants of these countries are hourly exposed during the winter season. Their customs are a direct contrast to our own, it being customary among us

to dress as slightly as possible, and render our apartments as warm as possible, by the united aid of large coal fires, double doors, warm carpets, cieled rooms, and by every caution that can prevent the external air from entering at chinks and crevices, to restore the balance of circulation.

This contrariety in the mode of living, in those two essential articles of dress and habitation, will fully explain, my dear sir, the cause of the frequency of catarrhs in this country, and their being comparatively seldom in Holland, without imputing the cause exclusively or principally, as some have done, to the great variableness of our climate. The transitions from heat to cold in Holland, are fully as frequent as in England, and the extremes of heat and cold are generally greater; but their effects upon the constitution are by no means so immediate or violent. Thus I fear that the opprobrium that has been cast upon the climate of England, rather belongs to the injudicious conduct of its inhabitants.

It has been remarked, that as luxury increases in Holland respecting the greater comforts and accommodations of their apartments, they are becoming more subject to catarrhs. Certain I am, that the English inhabitants of Rotterdam who imitated the manners of this country respecting the largeness of their coal fires, warmth of apartments, and thin cloathing, have been much more exposed to what we term *catching cold*, than the Dutch that retain their pristine manners. A remarkable circumstance in Mrs. Cogan's family will confirm the same idea. Of two brothers, the one was so partial to the English, that he adopted all their manners, and sometimes to an excess in the article of dress, disdaining to wear an under waistcoat, and braving the inclemency of the weather with an open breast, &c. The other strictly adhered to the customs of his country, for which he was frequently bantered by his brother. But the banterer

died of a consumption when he was about thirty years of age, while the other, whose delight was in hunting and fishing in the most inclement seasons, was a perfect stranger to coughs and colds, and enjoyed uninterrupted health till he had passed his 57th year, when he was killed by accident.

I might also remark, that the Germans are said to be as liable to catarrhs, and consequent consumptions, as ourselves: and a journey I took to the northern parts of Germany in the winter of the year 1784, which was very severe, not only convinced me of the fact, but in my opinion pointed out the cause. The suffocating warmth of their ovens or stoves, to which the Germans are so much attached, produce too powerful a contrast with the external atmosphere, to be respired with impunity. But as you have been in Germany, it is highly probable that your observations have been more minute and accurate than my own.

These facts seem perfectly correspondent with the modern ideas concerning the nature and causes of catarrh, together with the powerful stimulus of heat, after the application of cold; but it would be impertinent in me to theorize upon the subject, which is in much better hands. I shall deem myself happy if the above hints should prove in the least degree serviceable to your purpose; and sincerely wish you success in your indefatigable endeavours to promote salutary truths."

SCOTLAND.

Concerning this division of Great-Britain, we possess, in the *Statistical Reports* published by Sir John Sinclair, a document more precious than can, I believe, be produced concerning any other country. It

is a minute interior survey, almost from house to house, and in point of instructiveness, ranks far above the productions of the most inquisitive and authentic travellers. Not a few of the papers, indeed, betray prejudice, ignorance, and want of discrimination ; in some, contradictions are easily discoverable. But there is upon the whole so much particularity, in several instances so much intelligence, and each account is so completely checked by the rest, that the causes of the condition of the people are perfectly apparent. The facts are, I imagine, applicable likewise to England. There is at least, no reason to suppose that the mere difference of latitude makes any sensible difference with regard to the prevalence of the disorder which is the subject of the present essay.

It results from a comparison of the different parochial reports, that rheumatism and consumption, with low fever, are the prevailing disorders of Scotland. How, and

to what degree, low fever takes place in consequence of penury and heedless exposure to contagion, it is foreign to my purpose to investigate. But rheumatism and consumption stand in a sort of contrast to each other. A multitude of testimonies (and in the whole twenty volumes there is no opposing evidence) may be brought to prove that, in general, *women, especially those who follow still employments, and men engaged in the almost feminine occupations of the cloathing manufacture, become frequently consumptive: whereas the husbandman and the shepherd, being obliged to expose themselves incessantly to the vicissitudes of the climate, and untaught to employ any precautions against the effect of these vicissitudes, either become crippled by the rheumatism, or wear out a wretched existence under the constantly returning pains of this severe disease.* In a medical map of Scotland, unless the scale were very large, space could with difficulty be found, if the word *rheumatism* were to be repeated as

often as it occurs in the Statistical reports. It would be worthy of the class whose food is raised at so dreadful an expence to their inferiors, to adopt means for instructing the peasantry (since they must continue to be exposed) how they may escape the consequences of exposure. The instruction might probably be communicated through the clergy.

A remarkable circumstance has contributed to the modern frequency of rheumatism; and in habits of an opposite kind, the same circumstance must often have produced consumption. Within the memory of persons now living, the activity of commercial speculation pushed the goods manufactured at Manchester into the farthest recesses of Scotland; and the people, allured by their gaiety of colour and fineness of texture, unwarily relinquished the warm woollen garb of their forefathers. The reporters every where speak of a change for the worse in the general state of health,

as taking place, under their own eye, in consequence of this change of dress.

Among the numerous repetitions of the same facts, I find it difficult to choose. To the following illustrations I could have added many of the same tendency, and of equal force. The inverted commas will shew where I copy the words of the report. For the rest, I have retained the concise language of my abstract, which I have not been anxious to strip of every particular that may seem not immediately connected with the subject.

Parish of KILBRIDE, (*County of Lanark*) population 2359. Employments, weaving, manufacture of cotton, shoemaking.—“The disease that carries off the greatest number of persons, about the middle period of life, is the consumption. Old people affirm, that in their forefathers’ days this disease was extremely rare, and *seldom mortal*!” Its progress is ascribed to change of cloathing, from the thick, warm Scot-

tish plaiding, to fine, thin, cold English cloth. Vol. III. p. 427.

CAMPSIE, (C. of *Stirling*), population 2527 : numbers employed in callico-printing, and weaving ; weavers 105 ; pencillers of callico (who are young persons and married women) 160, besides block-printers. Deaths for the last 3 years---

Of small-pox, - - - 15

Palsy, - - - 2

Asthma, - - - 1

Chincough, - - - 6

Measles, - - - 6

Child-bed, - - - 1

Mortification, - - - 1

Bowelhive, - - - 1

Old age, - - - 26

Consumption, - - - 26

Sixty years ago, consumption unknown in this district. " Where people were cloathed in pladding which somewhat resembles flannel (which was the case till very lately in this district), and where

they seldom were confined to work in warm houses (as is now the case), great colds, the forerunners of consumption, would not easily affect them." XV. 360.

Climate variable; coal plentiful, "which enabling the meanest cottager to obtain a hearty fire, may contribute to salubrity."

319.

KIRKCONNEL, (*Dumfries*). "Not unnatural to suppose, that to the *modern* passion for light, flimsy, airy dress, so prevalent among all ranks, so unsuitable to the constitutions of all, and to the occupations and funds of most, particularly the poorer sort—no small share of the equally common prevalence of colds, fevers, rheumatisms, asthmas, consumptions, is owing."

KIRKCALDY, (*Fifehire*). The most prevalent disease is rheumatism, chiefly affecting the aged, "and even these chiefly among the classes which are exposed to hard labour in the open air." Consumption prevails among young females. LIFE

and BERVIE, *Forfar*; much weaving. "Consumption and rheumatism (disorders the most fatal to society, especially in the country, owing principally to the want of good and comfortable accommodation among the poorer class of people) are not more prevalent in this than other quarters where the same proportion of people lead sedentary lives." XIII. 103. It should be observed, that exposure to the weather, with subsequent mismanagement, is not the sole cause of the rheumatism. In the reports, cold damp houses are very often observed to produce it. RATHEN, *Aberdeenshire*, 1730 souls. The well-disposed live comfortably. Servants and others now spend so much in dress, that they are in general poor.

Low fevers lately fatal. Formerly inflammatory fevers prevailed more. "Not 50 years ago, the rheumatism was little known. Now there are few grown persons altogether free from it."

The extract from the register of the dispensary at Aberdeen, unfortunately supplies no information concerning consumption. But it seems to shew that either from less exposure, or from the houses being drier than in several of the country parishes, the inhabitants of the town are not so extremely subject to rheumatism as the peasants. The population of Aberdeen is said to consist of 24,493 souls—

In 1786, there were	{	ill of fever -	290
admitted	{	of rheumatism	27
In 1787, - - -	{	fever - -	382
	{	rheumatism -	26
In 1788, - - -	{	fever - -	348
	{	rheumatism -	15
In 1789, - - -	{	fever - -	235
	{	rheumatism -	16
In 1790, - - -	{	fever - -	623
	{	rheumatism	33
In 1791, - - -	{	fever - -	350
	{	rheumatism	4

In 1792,	-	-	-	{ fever	-	-	200
				{ rheumatism			38
In 1793,	-	-	-	{ fever	-	-	228
				{ rheumatism			25
In 1794,	-	-	-	{ fever	-	-	86
				{ rheumatism	-		57

In the hilly and damp parish of CARSEFAIRN, *Kircudbrighshire*, “the rheumatism, it might be expected, would be a prevailing disease; particularly when it is considered that the shepherds, after being greatly overheated in climbing the steep mountains, must often be exposed to the piercing air on their summits, and that they often continue wet for whole days and nights. *That it is not so*, must be attributed in a good measure to the discreet use of warm woollen cloths, particularly the *plaid*, with which every inhabitant of the parish - - - is provided.” vii. 514.

These passages represent what is so perpetually told of the effect of dress upon the health of the peasantry. They also

illustrate the contrast which I have stated to prevail between consumption and rheumatism. But the curious and able account of the parish of LONGFORGAN in the *Carse of Gowrie, Perthshire*, shews, in a manner peculiarly distinct, how rheumatism and pulmonary complaints are shared among the inhabitants, according to constitution, diet, and occupation. Longforgan has a population of 1526 souls. The lesser farmers and manufacturers (among whom are 61 weavers) have plenty of good, wholesome food. Many are supplied with butcher's meat at times ; and both they and the labourers not only use oatmeal and potatoes with the produce of their yards and gardens, but they frequently have wheaten bread. Almost all who have families, use tea and its accompaniments.

In this parish there are thirty-six small farmers, from 5l. to 15l. rent ; but almost every one has a trade, so that the management of his little farm is the employment

of his leisure hours only, which improves his health, and gives him many little comforts. There are also tradesmen (mechanics) who have only a yard or garden.

Formerly agues prevailed in the *low Carse*, but since its draining they have disappeared. Fevers not frequent. "Ploughmen and labourers are subject, while young, to colds: these, in strong constitutions and at a more advanced age, generally terminate in rheumatism and *gouty pains*, as they are called by the country people. In others, these colds fall upon the breast; the lungs are affected, and in general such complaints terminate fatally. This termination generally happens in scrophulous habits, which are very prevalent among the weavers and common people."

ELGIN, *Murrayshire*, souls 4534. "We are become more effeminate, and labour (is become) more severe, while the mind is depressed from the anxieties of life, and the difficulty of procuring a subsistence.

The progress of the scrophula is alarming. ----Consumptions are frequent among the young. Manufacturers and tradesmen, in particular, are subject to them from the nature of their employment. The women lead sedentary lives, from which arise obstructions that often terminate fatally; and from the same cause, difficult labours are more common than formerly." v. 17. In the same page, the frequency of scrophula and consumption is a second time mentioned. P. 22. It is conjectured that late marriages, from discouragement, give rise to "a puny, helpless race of children."

CLUNY, *Aberdeenshire*. All the women, some old men, and boys, knit stockings all the year round (except in harvest) for the Aberdeen manufacturers. Formerly all the country people dressed in cloth of their own work;---now every servant lad almost must have a Sunday's coat of English broadcloth. Formerly every servant lad and maid had a steer or two, and a score of

sheep ;---now both sexes have only finery to begin the world with. X. 245. Rheumatism, low-fever, consumption, and scrophula, are the prevailing diseases. Of these, consumption the most fatal. 237.

RAYNE, *Aberdeenshire*. Stockings knit by all the women, some old men, and boys. Hysterics very common, and cutaneous disorders. Yearly deaths 17, in a population of 1173 ; of the 17, 7 or 8 are from consumption ; living wretched. Similar facts occur in many Aberdeenshire parishes.

LONDOUN, *Ayrshire*. The disease that is most prevalent is the consumption. Scrophula, or white swelling, is frequent from poor living and sedentary life, and bad air in weavers' shops, where they never have a fire." BEITH, *Ayr and Renfrew*—of 2872 persons, 259 are employed in making thread, and weaving muslin, besides many females who sew and tambour muslin. A good deal of sickness in the village. Fevers and consumptions the prevailing disorders.

As a contrast to these instances, of which hundreds more could be produced, the village of CATRINE, in the parish of SORN, *Ayrshire*, deserves to be noticed. It is inhabited by cotton-manufacturers, to the number of 1350, and in consequence of the following regulation, is said to be very healthy, though a few die of consumption and fevers. XX. 143. The proprietor, Mr. Alexander, directs the overseer of his farm to set off annually, from 15 to 25 acres, according to the quantity of dung saved by the villagers. On this land are planted potatoes, sufficient for the winter provision of the manufacturers. "The dressing of these potatoes is the employment of both old and young on the summer evenings, after they are dismissed from the mills---their emulation to have the best and cleanest crop, renders them all very industrious. It is an extremely pleasant sight, on a fine summer's evening, to see such a number of

people so usefully employed." 177. Children under nine are not admitted into the work.

From several reports it appears, that when poor living and cold combine with sedentary occupations, consumption is particularly common. Thus at DUNDEE, *Forfar*, where the population is stated at 23,000 souls, "the most frequent endemical diseases are consumptions and the scrophula, by which last, perhaps, the former are principally produced. The scrophula seems principally to affect the families of linen-weavers, who sometimes feed poorly, and whose manufacture is carried on in damp and low floors." viii, 200.

The effect of cold and penury in the production of scrophula, is remarked in a multitude of articles. Rheumatism is generally mentioned at the same time, in a way which leads to suppose that it attacks those whom better fare, or a hardy consti-

tution, exempt from scrophula. Thus in the elevated parish of CURRIE, *Mid Lothian*, where the walls of every house "display marks of the moisture of the climate," rheumatism is stated to be the chief disorder; and scrophula to be "very prevalent, as in all the parishes where the climate is cold and damp, and the living of the inhabitants poor, and principally of the vegetable kind. The misery this disorder occasions, would in many places of Scotland seem to require the interference of the legislature to prevent, if possible, its increase." v. 314, 315. Under the head WIGTOUN and ROBERTOUN, *Lanarkshire*, we are informed that "a good many people die of a kind of consumption, conjoined with, and terminating in, rheumatic pains and swellings, induced by living meanly in cold, damp, uncomfortable cottages." vi. 309. Whether the swelling of the legs, which is general in consumption, and the severe wandering

pains that are often felt, are here mistaken for rheumatic, is very immaterial.

In some few situations, it would appear that mechanics who labour in close apartments, suffer less than the peasantry. These instances make nothing against the general proposition laid down above; and I point them out here, lest it should be supposed that I had not taken them into consideration. It is in fact easy to conceive that the husbandman may be occasionally exposed to powers more deleterious than those which regularly operate upon the manufacturer. In KILMADOCK, or *DONNE, Perthshire*, this exception would appear to take place. Kilmadock contains 3209 inhabitants, of whom 700 are employed in the only cotton-work of the parish. Concerning these, it is said that "the confinement of so many people in one house, rendered the air very impure; the heat necessary in preparing the cotton kept the workmen constantly in a sweat,

and extracted the nourishing juices. The noise of the machinery rendered them soon deaf; and the flying particles of cotton, and constant labour of the eye in watching the texture of the thread, weakened and destroyed the sight." These evils are "in a measure remedied." xx. 87, 88.

In this parish, small-pox, fevers, and consumptions, are the fatal diseases. "Fevers and consumptions are the consequence of hard labour, bad food, and colds. *They are therefore most prevalent among the country people.* The food of many of the people is extremely poor. No attention is paid to the advantages of a kitchen garden. The houses too are, in several places, wretched huts, scarcely capable of supporting the roof, and far less of defending against the storms and colds of winter. - - - - - The insufficient cloathing adds to the general train of causes." ib. 52. The parish wants coal. p. 92.

Of the parish of ERROL, *Perthshire,*

where the whole country is naturally wet, though much drained of late, and the houses are said not to be so well-built as of old, it is observed, that the ague is not so prevalent as formerly. But "a disease still more fatal seems to have come in its stead. Consumptions, which formerly were rare, have of late been very frequent, although from the state of cultivation, it should be thought that the air is much more salubrious. But (what is remarkable in the Carle of Gowrie) the people who reside in the higher parts are not found to be the most healthy. The inhabitants of the low and marshy grounds, indeed, may be more liable to rheumatic complaints, but they have often been observed to enjoy the longest course of life." iv. 481.

I shall content myself with these quotations. They are undoubtedly not sufficient to prove any thing concerning Scotland at large : but they are perhaps more than sufficient for the purpose for which they

are produced. They make the conclusions, in which I conceive the mass of reports to agree, fully intelligible.

GENERAL INFERENCE.

On a review of the whole of the preceding facts, two different conclusions offer themselves to our consideration. *Certain classes are less liable than others to consumption, either because the exhalations to which they are exposed preserve the lungs in a healthy state, or because they acquire from their mode of life a habit less susceptible of the complaint.*

It would be rash to assert that no sort of exhalations have a preservative power. The case of the manufacturers of catgut, though it requires further examination, stands in strong opposition to such an inference. It would be no forced construction of the evidence respecting butchers,

and perhaps of that respecting fish-women, to impute the degree of security which they enjoy to the same cause. It may be supposed that seamen are rendered less susceptible by the odour of tar. But this supposition, even though no other facts remained to be accounted for, would, I apprehend, afford little satisfaction to those who consider the circumstances with attention. The total difference between the nature and abundance of the fumes to which catgut-makers, butchers, and perhaps fishwives, though in very different degrees, are exposed on the one hand, and sailors on the other, takes away greatly from the probability of the opinion. Though the copious, gross, and palpable exhalations of putrefying animal substances should have a specific power of preventing pulmonary ulceration, we cannot for this reason presume any thing in favour of the mere smell of tar. Two distinct materials applied to the lungs, are not more likely

to produce a common effect than two distinct materials applied to the stomach. Nor does experience of animal nature offer analogies which can justify us in believing that a minute portion of odoriferous matter, however it may stimulate the olfactory nerves, should be capable of acting with effect on an organ so inirritable as the lungs. And when we attend to the remainder of the class that appears less liable to consumption, the hypothesis fails us altogether.

Waving the example of the manufacturers of catgut, the others are easily understood: the butcher, the fishwife, the sailor, the keelman, the husbandman, and the shepherd, have somewhat of a common constitutional character. They compose the most robust part of the community. And if we abstract from external violence, and internal mechanical injury, whom do we find predisposed to consumption? whom but the puny by descent, by diet,

by sex, by occupation? In this point the facts on both sides meet; on any other principle they are irreconcilable.

But my doctrine is perhaps less in danger of opposition than of contempt. It may be regarded as too general for any purpose of useful application, and too obvious to require a formal induction of proofs. I am however to learn that any one has traced exemption from phthisis and phthisical susceptibility through the different orders of society. Much less has a body of information, thus acquired, been employed for ascertaining the power of climate; for the analysis of opposite constitutions; for explaining the operation of the determining causes; for clearing up the connection between catarrh and consumption; for the solution of other difficulties; for deducing rules of conduct, suited to various situations; for the correction of errors that lead physicians to give, and the people to follow, useless ad-

vice; and for removing those misconceptions, of which impostors avail themselves to induce the public to have recourse to their wretched syrups and balsams.

PARTICULAR CONSIDERATIONS.

To estimate the precise power of every circumstance, which, by rendering the habit robust, contributes to security against consumption is, in the present state of physiological science, impossible. Much doubtless depends on their co-operation. But for the regulation of conduct, it will be useful to distinguish them from one another, and to shew that each has a real effect. I may be the more concise, as the most luminous of all possible commentaries will be found in the facts related above.

Of the following observations, it is to be understood that they can only with propriety be adopted in practice, where there is feebleness of constitution, without formed disease. For cases of hereditary predisposition, joined to feebleness of constitution, I do not perceive that any peculiar system of rules is necessary. None need be taught that double danger demands double care.

Diet.—To the quantity of animal food consumed by the English, some authors have attributed our propensity to suicide, and others our liability to consumption. But there are few countries in Europe, of which the inhabitants do not consume as much animal food as the corresponding classes of the English; and in several countries, animal food forms a much more considerable proportion of the usual diet than in England. These countries do not enjoy a climate particularly favourable, yet we by no means find that the lungs of

the inhabitants pay the penalty of their greater voracity. They are not more phthifical in proportion as they are more carnivorous.

How much the natives of Vienna exceed those of London in the frequency and fullness of their meals, appears from the minute relation of Mr. Nicolai of Berlin, in his excellent travels through Germany. (*Reise durch Deutschland*). The lively and observant, but perhaps less instructive, Baron Rifsbeck, in his assumed character of a French traveller, tells us, that in the capital of the Austrian dominions, people feed much more plentifully and delicately than at Paris. "The daily table of people of middle station, of the inferior servants of the court, of merchants, artists, and the superior mechanics, consists of six, eight, or ten dishes, to which two, three, or four sorts of wine are added. They commonly sit two hours at table, and I was reckoned uncivil for declining several

dishes in order to spare myself indigestion.”
(*Briefe uber Deutschland. Wien 1790, f. 31*).
I believe the superiority of Vienna, in the
article of gluttony, is perfectly well un-
derstood by every one who has taken the
smallest pains to inform himself of the
manners of different countries. The same
habit extends far beyond the precincts of
the capital. “I cannot (says a medical
observer) by any means persuade myself
that the excess of the English in animal
food (with which we Germans, at least,
very unfairly reproach them) has any thing
to do with the frequency of self-murder
in their otherwise fortunate island. For
in Bavaria, Austria, and other provinces
of the German empire, far more butcher’s
meat is served up than in England, and
far more eaten: yet with us suicide is a
far more unfrequent occurrence. That we,
in fact, eat a greater variety and a greater
quantity of meat than the English, I was
convinced by the entertainments at which

I was present in London. And I still recollect with pleasure, an incident to this purpose that took place at Coventry. At an inn in that city, my fellow-travellers and myself bespoke all the articles (they were about six) in the bill of fare. We were obliged to repeat our order to the waiter three several times, and at last were interrogated by the landlady herself, whether we had in earnest ordered *all* that meat. So simple is English fare." (*Salzburg med. chirurg. Zeitung* 1790. I. 170). These attestations seem entitled to the greater attention in an enquiry like the present, because the English temperament, if I mistake not, more nearly resembles the German than that of the inhabitants of warmer countries. Yet even, in some of these, more animal food is perhaps consumed than among us. I can hardly persuade myself, for example, that the French cookery, which renders meat more palatable and more digestible, does not occasion a greater

quantity to be taken; and according to the best of my observation, a greater quantity both at Paris and in the provinces was taken. A diversified table is a temptation that rarely fails of its effect. In opposition to a well-known paper in the *Spectator*, the naturalist Buffon, as his friends assured me, used to assert that a French meal, from a variety of dishes, is more wholesome than the simple and slender fare of an Englishman. Addison is, I believe, greatly mistaken in imputing the consequences he does to mere eating. The unwholesomeness of mere variety of food is among the grossest of popular errors.

The observations, related above, nearly all concur in making it appear, that the persons most free from consumption are precisely those that consume most animal food. Their healthfulness is undoubtedly not to be imputed to this circumstance alone: but it is to be presumed that their substantial diet has its share in determining their personal condition.

We may adopt this conclusion with the greater confidence, because it is powerfully supported by analogy. We observe that a large proportion of the consumptive, either in the earlier part of life, or at the very time when the chest suffers, are affected with scrophula or king's evil, a disorder which shews itself by slow, indolent swellings of the glands, by pale ulcers with thick turned up edges, and by other well-known signs: so that the appearance of scrophula is justly regarded as a sign of the consumptive habit. When children are fed upon vegetables, with little or no admixture of animal food, they die in great numbers, of scrophulous affections. In the families of the poor who *cannot* command better aliment, this is one principal cause of mortality; and in the families of the rich, who in consequence of erroneous medical notions sometimes *will not* allow a proper proportion of animal food, scrophula often takes place, (though in a

slighter degree, for it is checked by other circumstances) and the foundation of consumption is laid. " There are (as a writer of superior merit on the king's evil observes) among the higher classes, some who keep their children to the fifth, or even the seventh year, upon a strict vegetable and milk diet, believing that they thus render the constitution a signal service. I have however, frequently pointed out to parents, whom I have heard boasting of the advantages of this management, either an enlarged abdomen, or some other sign of incipient scrophulous indisposition, which has convinced them that their children were far from being so healthy as they supposed. In our temperate latitudes, a diet of this kind is certainly not proper after the age of two years. Where a feeble constitution coincides with an hereditary disposition to scrophula or rickets, tender meat and soups are particularly serviceable. Dr. Weikard perfectly agrees with me in

opinion. He observes that children brought up according to the fashion of the great (without animal food), are particularly liable to the rickets. Dr. Kaempf attests, that by animal diet he has restored a great variety of children who had been dreadfully reduced by water-gruel, milk, and vegetables. Dr. Vogel also asserts, that animal food is falsely held to be a cause of atrophy, and that children, from whom such food is withheld, oftener fall into an atrophy than those to whom it is allowed." (C. G. T. Kortum de vitio scrophuloso, I. 3. 50). These testimonies may be received with the fuller assurance, because in other respects the authors are strongly disposed in favour of that theory, which still not unfrequently deludes English parents with the false hope of rendering the blood of their children pure, and their humours mild, by millet pudding, and by other preparations of vegetable substances in over-proportion.

That a diet in a great measure vegetable should be the most wholesome (or not unwholesome) in tropical regions, where scrophula and consumption are little known, and that it should agree well with a few individuals in this country, can be of no importance to the present investigation.

In cases, therefore, where habitual weakness or the history of the family gives reason to apprehend consumption, one of the most indispensable rules of preservation is to *use animal food freely*. There seems no limit to the quantity, but the indications furnished by the palate, and the power of the digestive organs. More should not be given—more will not be long taken—than is fully relished. A few surfeits will not be followed by the least injury. The ready sickness of children is the natural cure of their indigestions, and has the appearance of a provision against the voracity and inexperience of that age. Feeling,

assisted by observation, will soon fix the just measure of aliment. In addition to a nutritious dinner, children after their fourth or fifth year, should be allowed a moderate quantity of solid animal food, or of good soup, once a day. Abstinence from vegetables I by no means recommend; and (to repeat an essential caution) what has now been said is to be understood of the ordinary state of health. In sickness, the diet must be varied according to the exigency of the case.

Exercise.—Were it in my power to recommend a *passive* plan for rendering the system of young people robust, I should doubtless give many of my readers much greater satisfaction. — The prospect of being long obliged to make observations, and to exercise discretion, will create a sense of repugnance in the very individuals, who would think nothing of forcing upon their little ones a nauseous diet-drink for months or for years together. So much more

irksome is it in general to think that implicitly to follow directions ! Rather than submit to a careful regimen, we every day see people submit to the periodical return of severe disorders. And self-denial is, I apprehend, far less contrary to modern habits than continued exertion. We seem to have lost all relish for active occupations in proportion as they are become more necessary to us. In the case, however, of a constitutional tendency to consumption, it is just as reasonable to expect security from an amulet worn round the neck, as from mere medicines received into the stomach.

It does not require nice observation to be satisfied that *exercise is necessary to give effect to diet*. Between the opposite examples, adduced in the former part of this essay, the most striking difference, perhaps, consists in the activity or inactivity of the parties : those less liable to consumption being obviously the more active, and those

more liable, the less active. This is strongly illustrated by the history of the health of the sexes.

We find also that scrophula rarely affects the active and well-fed. Women have long been observed to be more subject to scrophula, for which Dolaeus superstitiously accounts by supposing that providence deforms the neck of females with morbid excrescences, to punish their vanity in displaying this part encircled with costly ornaments. Dr. Kortum well observes, that this doctrine requires considerable restriction, since in childhood both sexes are treated pretty much alike. Boys and girls keep company, they run together, they jump together, and dig together. It is not till after that unfortunate era, when the girl is taken up to be manufactured into a lady, that every thing conspires to prevent her organization, originally perhaps more feeble, from acquiring a healthy force of action. I have been sometimes

tempted to think, that a period nearly equal to that of female education is required before the constitution can be undetermined, and the lungs thrown into a state of complete disease; and that this is one reason why consumption is so common about the age of puberty.

To a people which should carry into practice the maxim so vainly professed by us---*that health is the first of blessings*---a faithful delineation of the life, led by women in opulent families, would appear not less paradoxical than the observances of the most uncultivated tribes appear to us. It is one continued scene of indolence, diversified only by the succession of sedentary amusements to sedentary occupations.

Home education is perhaps, in respect to exercise, rather less prejudicial. Somewhat more of exercise will be allowed; and there is certainly less danger of injury from scanty or meagre food. As to boarding schools, it is impossible to be aware of

the sources of human suffering, and to behold without commiseration, the processions they send forth. The movements of the poor prisoners, that make up these processions, are utterly unworthy of the name of *exercise*. They cannot be supposed to contribute in any degree to health: and as they want nothing to funereal melancholy but fables and the hearse, they probably render the actions both of body and mind, more languid.

Of sedentary employments, all kinds are not equally unfavourable to health. Those which most exercise the sensibility are doubtless the most hurtful. Hence the frequent perusal of melting love-stories, related in novels, has been justly reprobated. The prevailing passion for music has probably occasioned more extensive mischief. This is not a simple evil. The excellence to which emulation, and sometimes the heedless vanity of parents, incite young women to aspire in this art, imposes

the necessity of intense study ; and the pleasure of music, like all other passive pleasures, is highly enervating. I do not, however, found my opinion solely upon this principle, well-established as it is. I have met with a number of phthical females who ascribed the origin of their complaint, in part, to the closeness of their application to music.

Boys, though not so strictly immured, are not in general suffered to take near exercise enough. Nature, for the most beneficial purposes, seems in our early years to have combined two propensities ; activity and curiosity ; the desire to exercise our limbs and our senses. And parents will perhaps come at length to discover that the best method of cultivating the understanding, provides at the same time most effectually for robustness of constitution ; and that the means of most completely securing both parts of the comprehensive wish of the satyrist

—ut sit mens sana in corpore sano—

are inseparable. After making this discovery, they will assuredly cease to sacrifice their childrens' faculties of mind and body to the idle grammatical subtleties of schoolmen and monks. They themselves, it is true, cannot be born and brought up over again. But they should not therefore despair of their offspring, whose organs may be still undepraved, or if depraved, not irretrievable. The more severely they may themselves feel the effect of the maxims under which they have been reared, the more sedulously should they guard against the same evils, those in whom they enjoy life a second time, and for whose welfare they are often ready to devote their own existence.

The difference in the manner in which the two sexes pass the period of their education, is more than kept up in riper years, and produces correspondent effects. Ladies, even in the country, pass many days of the finest season without more exertion

than a sauntering walk, or a drive in an easy carriage. In town, when they quit their close apartments, it is to encounter the dangers, without giving themselves a chance of the advantages, of exposure. Hence, in respect to delicacy of constitution, they have been well compared to flowers brought forward by the cherishing heat of the conservatory. They cannot with impunity bear to be roughly visited by the winds of heaven. The slightest cause disorders them, and till the phthical period is past, they exist in a perpetual state of dangerous weakness. For in this country, by whatever cause women under thirty are weakened, there is always considerable hazard of consumption. It appears as if the impaired power of digestion, which from such a mode of life must necessarily be almost universal, kept them in a constant state of preparation for pulmonary complaints. It is common (and instances I suppose must have occurred to every phy-

fician of experience) for female patients to relate how they had long been dyspeptic or bilious, till accidental cold or wet brought on a cough, after which the symptoms of consumption have regularly taken place, and nothing more has been felt of the complaint of the stomach.

In opulent families, I impute it in great measure to the indolence of females, that they so much more frequently become the victims of consumption. The business of life, and active sports, tend to invigorate the other sex. The intemperance of men does not afford any security against pulmonary disease. But, all things considered, I can perceive no good reason for supposing that excess in respect to wine, directly of itself induces consumption, even in the predisposed. I express myself in a guarded manner, because I can by no means venture to extend this observation to those whose lungs are already full of tubercles, or otherwise injured.

I think I cannot do justice to the present important object of consideration, without questioning the opinion which a medical philosopher, who on many occasions discovers an unexampled niceness of discrimination, has delivered respecting exercise. "Numbers of people, says Dr. Darwin, (*Zoonomia* II. 692) in our market-towns, of ladies particularly with small fortunes, live to old age, in health, without any kind of exercise of body, or much activity of mind." That they live to old age is apparent. Whether they live *in health* is the question. It is a question which every observer, whether of the profession or not, can decide with regard to the dowagers of his acquaintance; and who has not some among his acquaintances? To me these females have appeared to exist in a constant valetudinary state; dissolved by heat; pinched by cold; harrassed by sleeplessness on going to bed; unrefreshed by their tardy morning nap; faint when

empty ; oppressed when full ; and in the intermediate time, suffering under some of the other plagues of indigestion. As their *nerves* so commonly require drams in the shape of drugs, their comfortless existence renders them in every sense the best friends of the medical fraternity. To those in narrower circumstances, the apothecary regularly officiates as privy-counsellor. And from their fee-books it would, I imagine, appear how largely fashionable physicians, from Asclepiades the Bithynian, to Warren the Briton, have been indebted to the more amply endowed. No single cause, perhaps, has so effectually retarded the progress of medicine, as the incessant endeavours of dukes of this description, to exalt physicians of address above physicians of ability—(two qualities, which for very plain reasons, are seldom eminently combined).—To have half a dozen such patronesses, has always been better than to discover a remedy for the most cruel of human diseases.

On the subjects of dress and habitation, Dr. Cogan's observations are fully equal to the most perspicuous set of rules that could be framed: and it is not easy to conceive more pointed proofs than this correspondent has brought forward. As I profess, in the present tract, to build nothing upon speculation, I shall content myself with referring to Dr. Cogan's letter, and with remarking that, in the habitations of the Dutch, a constant cool atmosphere seems, as far as the very important organs contained in the chest are concerned, to obviate the evils of female indolence. To what degree external cold may be supported by the help of warm cloathing, appears from the example of those women, whom, in severe weather, we see sitting beside their stalls in the open streets, for hours together. From the closeness of English apartments, and the light dress of our countrywomen, it would seem as if they were anxious to ensure to themselves all the mischiefs which

human diseases

a rugged and variable climate can inflict. About seven years ago, in treating of catarrh, I observed: "It has been unfortunate for the inhabitants of this country, that we are not subject to such a continued severity of cold as should oblige us regularly to fortify ourselves by warm cloathing. By linen worn exclusively, we lose more in health than we gain in comfort; which comfort is perhaps, after all, merely imaginary; for there is hardly an instance in which the skin does not reconcile itself to woollen, though there is no necessity for placing it next the skin, and cleanliness is just as much in the power of the wearers of woollen. The most simple and effectual method to avoid the influence of sudden changes of atmospherical temperature, is to wrap the body in substances that conduct heat slowly. Both for this reason, and because it is so much less unpleasant when moist, flannel should be worn at least above linen, during every season in Great-

Britain; and those who find it necessary, may double it during the winter, spring, and beginning of summer." (*Observations on calculus*, 1792. p. 160). On the same occasion, I suggested the possible use of a portable apparatus for admitting warm air into the lungs in cold weather. This, however, would be cumbersome, and the idea is probably impracticable. On the principle of the Dutch, it is needless. Their dress protects the surface of the body from sudden chills; and the surface of the lungs becomes little susceptible of the impression of a cold atmosphere.

I fear, however, that this example will have little influence in Great-Britain. To the fastidious imagination of our belles, these good people will exhibit themselves, under their various coverings, as awkward and disgusting creatures; and the useful lesson which might be learned from them will, as usual, be set aside by a sneer. Yet it seems not impossible that the ingenuitys

which is at present exerted in producing mere variety, might conciliate elegance and utility. Dress is altogether an affair of association, and of very remote association. We see the most opposite fashions suddenly succeed each other, without scandal to the beholders; and it by no means follows, that a mode in which health should be consulted, must necessarily detract from the admiration that would otherwise follow the wearer.

It should seem, however, that unless we could prevail upon ourselves to make our apartments, by degrees, more temperate and more open, warmer cloathing would be but a small advantage. Indeed, if worn within doors, I apprehend it would be a disadvantage. Our ladies, however, would undoubtedly save themselves some suffering by ceasing to "expose themselves, half-undressed, to the fogs and frosts of our island." Additional covering in cold weather and cold places will not, it is true,

render the system more hardy, but it will often prevent injury for the time.

It would be dangerous suddenly to lower the temperature to which the feeble or the delicate have been long habituated. But sixty degrees of Fahrenheit's thermometer should perhaps never, even at present, be exceeded. By gradual reduction we should, I suppose, without unpleasant sensations, be well able to bear a temperature of fifty degrees. In effecting this change, attention must be paid to two circumstances. A fashion of warmer cloathing must be introduced, and contrivances for keeping the feet warm must be adopted. An apparatus of great elegance might be invented, upon the Dutch principle: or the feet, when cold, may be placed upon a close tin vessel, containing warm water. In various kinds of indisposition, attended with cold extremities, I have for some years recommended, with manifest advantage, a tin *foot-warmer*; and I understand they are now manufac-

ture of a convenient form, by Lloyd, near Norfolk-Street, Strand, London.

How far close, heated apartments, which appear so injurious by rendering the lungs incapable of bearing the impression of cold, contribute upon the whole to comfort, the purpose for which they are immediately designed, is exceedingly doubtful. No human being can be always sheltered from the rigour of our climate; and there is a well-known law of sensibility, which continually tends to render the expedients of indolence abortive. On this subject, I hope I may be allowed to produce a passage from one of my former publications, as I still entertain exactly the same sentiments.

“In aid of delicacy of constitution, art has engaged in many a contest with nature. The carpetted flooring, stuccoed walls, and double doors of modern apartments, are intended as its screen. But these, even if they were to be reinforced by the double windows of the north, would be an una-

vailing protection. Nature, brandishing her scourge, pursues with quicker steps than those who forsake her ordinances can retire. The susceptibility of impression increases faster than ingenuity can bar out external agents; and in the best secured fortress of effeminacy, it is the fate of the occupant to shiver more at the inclemencies of the seasons, than the mountaineer who is exposed to all the blasts of winter."

(*Lecture introductory to a course of popular instruction*, p. 28. Johnson).

To render the foregoing representation more clear and convincing, I add a few explanatory reflections on the particular manner in which a cold or variable climate affects different people. The attentive reader will have remarked, that not only the more active part of the labouring class in Scotland, but also the hardy and weather-beaten tribe of butchers, fishwives, sailors, and keelmen, frequently experience rheumatic and other inflammatory seizures.

These are visibly produced by considerable and sudden changes of temperature. Respecting the manner in which this effect takes place, medical reasoners are by no means agreed; some supposing mere cold to be the agent; others, that the *subsequent* stimulating power of heat is necessary; just as in frozen limbs, incautiously heated, inflammation runs so high as to induce mortification, which is but a different degree of the same operation.

Whichever of these be the order of nature, it is easy to see how a cold climate will act. Circumstances will prepare certain parts for the influence of cold alone, or of cold succeeded by warmth. Thus a workman whose employment necessitates strong action, will have the muscles of the limbs which he exerts most, in a state to be most affected by cold. If he should be chilled or wetted on his way home, he will approach the fire with as little suspicion of injury as the moth rushes into the candle.

The supposition, therefore, (which seems to me perfectly established by exact observation), that inflammatory affections are the effect of heat, or other stimuli, acting on chilled parts, accords as well with the practice of life, as the supposition that they arise from direct cold. It is easy, either way, to understand how they seize the moist membrane that lines the nostrils, or the throat, or the chest, assuming the form of cold in the head, or quinsy, or pleurisy, just as when circumstances direct the action of the powers towards the muscles, rheumatism is produced. Thus persons much exposed will be much subject to rheumatism, and analogous complaints. Whatever might be the effect of caution in avoiding sudden heat, a robust habit will be no protection. But the consequences to the lungs of catarrhs, or common colds, will depend entirely on the habit. On this subject I shall say a few words below.

In persons habituated to heated apart-

ments, what will be the part most prepared for the effect of a cold atmosphere? Will it not be precisely the lungs? Does not this appear to be the principal or sole cause why, in England, women are more subject to pulmonary diseases than in Holland? In the West-Indies do they not escape consumption, because though the predisposition or *interior* cause is present to a greater degree than in women at home, the exciting or *exterior* cause is wanting? Is not this fully confirmed by the observation, that females, when they come from the West-Indies to reside in England, are exceedingly subject to consumption. No person, I presume, accustomed to observe our female victims to consumption (I speak of the more opulent class), can contemplate Mr. Edwards's portrait of the Creole women, without conviction of their stronger predisposition to the disease.

"The ladies of these islands (says their elegant historian), have indeed greater

cause to boast of this fortunate exemption (from fatal inflammatory disorders) than the men; a preeminence undoubtedly acquired by the calm and even tenour of their lives, and by an habitual temperance and self-denial. Except the exercise of dancing, in which they delight, (*how like the ladies at home?*) they have no amusement or avocation to impel them to much exertion of either body or mind.-----In their diet, the Creole women are, I think, abstemious even to a fault. Simple water, or lemonade, in which they indulge, and a vegetable mess at noon, seasoned with cayenne pepper, constitutes their principal repast. The effect of this mode of life, in a hot or oppressive atmosphere, is a lax fibre, and a complexion in which the lily predominates rather than the rose. To a stranger newly arrived, the ladies appear as just risen from the bed of sickness. Their voice is soft and spiritless, and every step betrays languor and lassitude.-----In one

of the principal features of beauty, however, few ladies excel the Créoles; for they have, in general, the finest eyes in the world; large, languishing, and expressive." (*History of the British Colonies in the West-Indies*. ii, 10). The whole of this delineation, and particularly the last words, left me little doubt respecting the appearance of the eyes. But as a celebrated physician in this country holds a large pupil to be the sign of a predisposition to consumption; and another in Germany holds a large pupil, with blue eyes, to be an essential sign of the scrophulous constitution*, and even to denote a scrophulous affection of the mesenteric glands, I thought it worth while to enquire of Mr. Edwards concern-

* Mehrentheils blaue augen, und der Augenstern weit und gross. (Diess verraeth sehr oft schon den verborgenen Feind im mesenterium). *Hufeland Skrophelkrankheit* Jena 1795. S. 115. Mr. Warner, however, is said to have first pointed out this dilatation of the pupil (*mydriasis*) as general in scrophula.

ing this particular, distinctly. The reader is apprized of his answer.

The temperature of the air in France, Italy, and even in Portugal is, I suppose, at times sufficiently rigorous to injure weak lungs. But concerning the comparative frequency, and the causes of disease in these countries, I would be understood to speak with a diffidence proportionate to my want of minute information. As little can I say satisfactory concerning the origin of consumption in Madeira, where the climate is so uniform, and where the inhabitants are far from indulging in artificially heated rooms. Only this I have been told by those who speak from their own feelings, and their own observation, that the difference of temperature is exceedingly sensible on moving from the valleys to the higher grounds, and that *catching cold* is an accident, to the full as common as in England.

The occasional connection between catarrh and consumption---the connection between the scrophulous temperament and consumption---and the formation of tubercles, are questions, of which the solution is essential to the theory ; and if I judge rightly, the solution of each is necessary to the complete solution of the others. But I forbear to consider these topics minutely at present, partly because a still more accurate examination of morbid appearances in the dead body is wanting, and partly because the discussion would be matter scarce fit for the perusal of any but the instructed physiologist. But as the tribe of empirics have always taken advantage of the inaccurate sentiments that prevail concerning the first of these questions, to frighten the public into the purchase of their useless compositions, and as the others are highly interesting, I shall attempt, with sincere distrust of my talent for exposition, a little to assist the conception of ordinary readers.

The formation of new parts (whether natural or excrescent), the removal of old parts (a process which we see exemplified when the skin is *eaten away* by ulceration), and the too great, too little, or proper lubrication of moist surfaces, depend upon a balance between two opposite sets of agents. One brings supplies; the other in equal time carries away part, or the whole, or more than the whole of what the other brings. One is *exhalant*, the other *inbalant*. The agents or vessels that convey, are the arteries with their appendages: those that carry away, are the absorbents. Of that which is conveyed, and that which is carried away, the quantity and quality differ according to the state of these two sets of vessels. Thus in a strong man, the discharge from an ulcer shall perceptibly differ from the discharge from an ulcer in a weak man---the matter filling the pustules of the small pox shall differ in different constitutions---but make the weak man stronger

by wine, food, or medicine, and the discharge or matter in the pustules, shall alter in quantity and quality. At the same time, the strokes of the arteries may be felt to be altered in number and force.

When a strong, cold wind blows upon the eye, the liquid, which in a healthy state of that organ but just suffices to keep the surface moist, overflows in profusion. We see the same thing happen with regard to the nostrils. In these cases, the evident destruction of the balance between the two sets of vessels, appears to depend on the lessened power of the *absorbent* vessels. Many phænomena render it credible, that by the first impression of cold (whether on account of their position or structure) these are commonly weakened more than the arteries. When the surface of the lungs, in the act of respiration, is repeatedly swept by cold air, the balance between the opposite sets of vessels is altered; and the more perhaps in favour of the arteries, as

the organ or the constitution is weaker. The weaker also the absorbent vessels, the longer before the disturbed equilibrium is restored. A blister continues to discharge much longer in the weak than the strong.

When any of the above-mentioned surfaces are inflamed, the balance is also lost. At first there is too little moisture. Dryness is felt on sensible surfaces, as that of the nostrils, or *huskiness* in the throat. Here the absorbents act with unequally increased power.---Afterwards there is an excess of secreted moisture, as is seen in the expectoration, and in the discharge from the nostrils. In old, weak people, a bad cold often occasions suffocation ; so great is the quantity of secretion, or so little that of absorption by the vessels on the surface of the lungs : and in the greater or less viscosity, the yellowness or greenness of the expectorated matter, a variation of quality is manifest. Diseased secretions from the lungs differ in all degrees, from the

tenuity almost of water, to the hardness of stone. The secretion, in these cases, is not confined to the surface; it extends to the whole substance of an organ, which is lax, spongy, or full of innumerable small cells, communicating with one another. In colds, the thickening of the membrane of the nose, and the sense of fullness in the chest, probably arise in part from excess of interior secretion, without adequate increase of absorption.

From the altered balance between the two sets of vessels, together with the altered quantity and quality of the matters exhaled and inhaled, let us try if we cannot form an idea of the scrophulous enlargement of the glands, of the formation of tubercles, and of the effect of colds, both when they go off without injury, and when they are followed by consumption.

Lest I should scandalize the anatomist, who knows that no glands have been found in the cellular substance of the lungs, I

think it proper to declare, that it is not my intention to represent the scrophulous enlargement of glands, and the formation of tubercles, as identical, but merely as analagous processes.

In scrophulous swellings of the glands, the absorbents act more feebly than the arteries. More is conveyed than is carried away. Hence there is probably a more than natural deposition of moisture in the cells, and certainly an increase of substance. By this very accumulation, the action of the arteries seems considerably altered; and the gland commonly becomes full of a matter of soft consistence, like curd mixed with cream. A mixture of the same kind often fills pimples that rise on the face and other parts. They are filled exactly in the same way, by the preponderance of the power of the arteries, and by their altered action. A substance is thrown out, which the absorbents do not remove at all, or not so fast as it is accumulated.

Those substances, which on account of their hardness are called stones, are formed by an operation precisely similar.

Should any cause so alter the action of the arteries, that a hard particle is thrown out into the loose cellular substance of the lungs, and should the absorbents be unable to remove it, the foundation of a tubercle will be laid. Accretion may take place, not only from the continued action of the original cause; but it appears that the nucleus itself may act so as to make the arteries throw out more of this substance. An experiment, tried, I believe, by Dr. Haighton upon an animal particularly exempt from consumption, seems strongly to confirm this very simple reasoning. Two drams of quicksilver were thrown into one of the veins of a dog. In less than two days a degree of feverishness followed, as appeared from the hardness and quickness of the pulse. Difficulty of breathing, and cough, quickly succeeded. These symp-

toms increased till the death of the animal. On dissection, tubercles were found in the lungs. Many of these tubercles were full of purulent matter ; and on cutting open those which were still firm, a globule of quicksilver was discovered in the center of each, " forming a kind of nucleus to the circumscribed inflammation or tubercle." (*Saunders on the liver.* p. 236). Here it is evident that the quicksilver, having been delivered by the veins to the heart, and by the heart to the arteries, was by them thrown out into the cellular substance of the lungs, and probably into that of the whole body. The absorbents not being able to remove it from the lungs, the arteries were stimulated to secrete the matter of which the tubercles consisted.

When bruises, falls, and hard, rough powders injure the chest, the arteries must be stimulated to secrete an unhealthy substance, which the absorbents do not take up again. For this purpose a material

stimulus is not necessary. It is easy to conceive that variations of temperature may act in the same manner. And this consideration will enable us to understand why catarrh should sometimes produce consumption. When a *cold* affects the chest, the destruction of the balance between the arteries and absorbents is obvious. But it may be very differently destroyed in the robust and the feeble. The arteries may throw out upon the surface, and into the substance, of the lungs, one kind of matter in the robust, and a very different kind in the feeble. And in one, before the complaint is terminated, the absorbents may take up the whole of what is thrown out; in the other they may leave the whole, or a part. No other circumstance more distinguishes the strong constitution from the weak, than the power of the absorbents to reinstate in its former condition, an organ in which the balance between them and the arteries has been destroyed.

By *strength of constitution*, I need scarce say that I do not mean absolute muscular power, but the power of vigorously performing the functions appropriate to the age. This strength of constitution the infant may possess as well as the adult.

The experiment with the dog seems to explain (what has not been well understood) the range of time during which tubercles are formed in different instances. The quicksilver, almost immediately producing fever, and the other circumstances, seem to prove that the secretion from the exhalants was soon changed, and that tubercles began to form in less than eight and forty hours. This gives to understand, why in certain habits, consumption succeeds catarrh without any interval. The tubercular process is often, as we shall see, infinitely slow. Disorders of the same denomination, by reason of the term that must elapse before a certain effect is produced, are often distinguished into *acute* and *chronic*. The

distinction would be no where more applicable, if endless intermediate gradations did not render it impracticable to draw any line in the case of tubercles.

More completely to investigate the scrophulous source of phthisis, many years ago, with these views, I proposed to different anatomical friends, to compare the matter of tubercles with the matter of enlarged mesenteric glands, when this complaint accompanies or precedes consumption, as very often it does.* The similarity of the matter would prove the similar action of the vessels by which both are produced. It is, I apprehend, a great mistake, to suppose that scrophulous disease may not arise in parts not glandular.†

* "Very often I have found the *tabes mesenterica*, which is a scrophulous affection, joined with the *phthisis pulmonalis*." Cullen's practice of physick. DCCLXXIX.

† *Systema quidem lymphaticum primariam morbi nostri sedem constituit virusque scrophulosum tantum*

The absorbent vessels having been every where discovered except in the brain, that destruction of balance which I have so frequently mentioned, may take place in the degree appropriate to scrophula, even where there are no glands. It must however be observed, that experience proves glands to have a structure peculiarly favourable to this sort of disordered action.

My friend, Mr. Bowles, surgeon in Bristol, (a skilful anatomist, and experienced observer of diseased appearances), whom I long ago requested to compare the substance of tubercles, and of scrophulous lymphatic glands, when he found them together in the same subject, has favoured me, in a letter dated April 5,

non semper primos decubitus facit in glandulas conglobatas sive lymphaticas. Minime vero ad hasce solas adstringuntur scrophulosi tumores, prout inepte asserit Cl. Diel, sed si invaluerit malum penitiusque insederit, alius quoque generis glandulæ, quinetiam partes non glandulosæ ab eodem afficiuntur. Kortum l. c. I. § 9.

1799, with the summary of his observations. "I have not noted down any observations on the resemblance between tubercles and diseased mesenteric glands, but in the examination of dead bodies, I thought I could discover several proofs of affinity between them.--Their different stages are similar, tubercles are frequently found almost as hard as cartilage, apparently inorganized, and on trial, impervious to injection: diseased mesenteric glands are met with in the same state, except that I have not yet endeavoured to inject them. In other instances they are both found to contain a curdlike matter floating on a thinner fluid, and sometimes I have discovered ossific matter in them both. In cases of tubercular phthisis, I have repeatedly seen the mesenteric glands so similar in appearance to the tubercles, that if the latter had been removed from the surrounding lungs, I do not think it would have been possible to distinguish between them."

In a consumptive patient, who expectorated stony concretions along with purulent matter, and whose lungs after death were found full of tubercles, I observed the same kind of stony concretions in the lymphatic or absorbent, bronchial glands; a proof that the same kind of action had taken place in the vessels both of the substance of the lungs, and of those glands. It would be well worth while to subject the morbid matter found in tubercles, and in scrophulous mesenteric glands, as well to chemical tests, as to further inspection.

These considerations seem sufficient to prove the resemblance between the species of ailment termed scrophula, and the production of tubercles in the lungs. But tho' they were perfectly identical, they ought not, according to the laws of the animal œconomy, always to co-exist. Neighbouring parts, and similar parts, sometimes fall into the same action, and sometimes they do not. One eye may be in-

flamed, or it may draw the other into consent. The corresponding tooth on the opposite side may follow its fellow into decay, or not. This diversity of event may depend on the constitution of a part, or on intervening circumstances, that escape notice. But the analogies are sufficient to make it appear quite in order, that consumption, though so often preceded or accompanied by scrophula, should nevertheless often separately occur. We have seen Mr. Carlisle (p. 70 *above*) noticing a kind of consumption, where the lymphatic glands at the root of the lungs were ulcerated, the substance of the lungs being sound. Future enquiry may perhaps teach, that what has occurred to Mr. Carlisle, of the infrequency of consumption in "persons afflicted with scrophulous affections of the superficial lymphatic glands of the large joints or bones (when scrophula attacks these parts early in life)," is not general. It is at the same time possible,

that scrophulous affections of other parts may more usually accompany the phthical disposition of the vessels in the lungs. So endlessly diversified are the states of the living system, and of its separate organs ! The affections themselves, which we class under the title *scrophula*, when minutely examined, are considerably different from one another ; and it would be most agreeable to the course of nature, to regard *scrophula*, and the tubercular consumption, as depending upon a kindred species of debility, occupying different seats, in consequence of which they alternate, or concur, or shew themselves apart, as they are influenced by a variety of external and internal causes.

The relation which pulmonary consumption bears to a certain age, and the cause of that relation, are questions which may justly excite the curiosity of the reader. But the physiological information we at present possess, does not enable us to gratify that

curiosity. A medical philosopher of great distinction observes ; “ There has always appeared to me two kinds of pulmonary consumption, one of which begins with slight hæmoptoe (spitting of blood), and which is generally seen in dark-eyed people, with large pupils ; and the other which commences without hæmoptoe, and which is generally seen in light-eyed people, with large pupils. The aperture of the pupil, in both these kinds of consumption, is generally large, which evinces the inirritability of the eye, and thence perhaps in consequence, the inirritability of the whole system. The former of these consumptions is generally hereditary, without any appearance of scrophula ; and the latter with appearance of scrophula, in the present, preceding, or third generation upwards. The former commences more certainly between the ages of seventeen and seven and twenty ; the latter attacks people of all ages.” (See *Dr. Darwin's*

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letter of Jan. 17, 1793, subjoined to the author's LETTER TO ERASMUS DARWIN, M. D. p. 64). In six years (that have elapsed since this letter was received) of unintermitting attention to the consumptive, I have remarked that the consumption of the dark-haired, beginning with spitting of blood, bears a small proportion to that variety which does not begin with spitting of blood. Of about twenty consumptive patients, of whom I have at present the charge, the disorder commenced in one only with hæmoptoe; and from all I have observed, I should think the proportion could scarce exceed one in ten. Sufficient pains have not been taken to examine the lungs of this division of the phthifical. It would be desirable to know if they were always filled with tubercles, and if ever the nucleus of a tubercle consists of coagulated blood. This variety of consumption has occurred to me nearly within the limits specified by Dr. Darwin.

But though I have known both infants (as was ascertained by dissection), and the aged, affected with the other variety, yet that also has far most frequently occurred between the season of puberty, and the five and thirtieth year.

This circumstance must depend upon some original or acquired property of the living system, not yet fully elucidated; to which the too great confinement of young people, particularly of young women, may give greater effect. Is it that the absorbents of the lungs have generally less power in proportion to the arteries about the phthical period? Children, if I mistake not, in the latter stage of catarrh, expectorate much less than grown people. I do not speak of infants who have not learned to perform the series of motions necessary to expectoration, but of those who are old enough to expectorate all the superabundant secretion in the chest. In children, when the lungs have been greatly weakened

by some disease, as the measles, and a cold is taken, large expectoration easily follows, and consumption itself. As hæmoptoe scarce occurs in children, the power of the veins to carry on the circulation in the lungs, must at that age be equal to the power of the arteries; and between the veins and absorbents, there is an obvious analogy of function; for of the colourless fluids, that in the state of health are not discharged from the body, there is also a circulation; the exhalants carrying them from the heart, and the inhalants, or absorbents, carrying them back again. Tubercles form in advanced life, when the absorbents of the lungs are weak; and it is observed by Mr. Kilgour, that among the old fishwives, consumption, in some rare instances, occurs after the chest has greatly suffered from colds (pp. 54—55); which confirms the present supposition, and seems to prove (what I have long suspected), that frequent and severe catarrhs

sometimes generate a phthifical disposition; a fact of some importance in estimating the effect of cold climates.

The growth (and often the rapid growth) of the phthifical, in all the stages of the disease, is a phænomenon that must have arrested the attention of those medical men who think concerning what they see. We frequently observe, that one function is vigorously performed long after another has been greatly impaired. Nor has any one been completely able to distinguish how wheel propels wheel in the movements of the animal machine. The apposition of new matter depends on the arteries. But physiologists observe, that the absorbents have a large share in the formation of new parts; whence it would follow, that in the rest of the system of growing consumptive people, the absorbents are active, however inert they may be in the lungs.

It is often asked, whether consumption

has become more frequent in modern times. To give a certain answer, we should be acquainted with the population of the country at different periods, and the number of deaths from this disease. But in the total want of such documents, the decision of the question must rest with the philosophical antiquary, who will perhaps be most safely guided in his investigation by an analytical consideration of the causes that affect the habit. Accuracy would require, that in some instances, the condition of different orders of society, and of the sexes, should be separately considered.

It seems probable, that the general diet of former centuries was more invigorating. The opulent of both sexes, appear to have participated rather more largely of animal food. Mr Strutt (*View of manners, customs*, iii. p. 110) speaking, on the authority of ancient chroniclers, of the time of Henry the eighth, Elizabeth, and some

succeeding sovereigns, observes, that "in those days, when coffee, with various other like sops, were not known, it was no uncommon thing for the chief lords and ladies of the court to breakfast upon a fine beef steak broiled, with a cup of ale, and that at eight, or perhaps nine o'clock in the morning, at farthest. They then usually dined at midday, or one o'clock, and such as eat suppers, most commonly sat down to meat about seven, or a little before, in the evening." The same author quotes a play of that period, in which a citizen declares, he has sent his daughter in the morning as far as Pimlico "to get a draught of ale to fetch a colour into her cheeks." Holinshed (*Descr. of Britain*, p. 94.) after saying that "the gentlemen and merchants keep much about one rate, and each contenteth himself with foure or five or six dishes, when they have but small resort, or peradventure, with one, or two, or three at most, when they have no straun-

gers to accompanie them at their own table," adds: "The artificer and husbandman make greatest account of such meate as they maye soonest come by, and have it quicklyest readie: *their fooode also consisteth principally of beefe, and such meate as the butcher selleth, that is to say, mutton, veal, lamb, pork.*"

The political economist could perhaps throw some light upon the nature of diet, by determining whether the proportion of pasturage to population would not furnish each individual with a larger proportion of animal food in past ages.

The hour of meals seems, as far as this circumstance can have effect, to be less favourable to health in modern times. After a slight breakfast, we expose ourselves for many hours to the rigour of our climate, and take our principal meal, just as we are about to shut ourselves up in our warm apartments. But as dinner, on account of the substances of which it consists,

imparts to the system a permanent power of resisting cold in a much greater degree than breakfast, it would probably be more wholesome to invert these meals in winter.

The vegetables formerly in use, seem likewise to have been more strengthening. These were, I suppose, in winter, preparations of wheat, rye, barley, oats and pease. The custom, still preserved in old-fashioned families, of beginning dinner upon pudding, seems to shew how much dependance was placed on farinaceous substances ; for when the dishes brought to table are not numerous, that which is taken first, will constitute a large portion of the meal. And as the old English, or Saxon, pronunciation, is preserved in our northern counties, and in the lowlands of Scotland, so I imagine porritch, (or hasty-pudding of oatmeal), crowdie, frumenty, sowens, bannocks of different kinds, pease-kail, are so many dishes which were general before the introduction of potatoes. This root, as far as it has

supplanted grain, has probably contributed to the degradation of the human species. I had heard much of the stout appearance of the poorer Irish, and I was so much the more surprised to find the few families, which I saw in their native cabins, abound beyond any example that had occurred to me, in sickly, scrophulous, and apparently ill-nourished objects. I wish that a fair and extensive enquiry were made among those of the Irish who have hardly any other food, except the potatoe—of which the utility as a supplementary article, and as a resource against famine, must be fully acknowledged. But I doubt whether it ought to be depended upon as the staff of life. I suspect it to be much too slender to support such a burden.

The subject of exercise would require to be treated with great discrimination. Upon the whole, I think, a change has taken place, unfavourable to health. Since the feudal times, the bodily condition of the male

sex in the different ranks of society, appears to have been reversed. The knights and nobles prided themselves on being more athletic than their vassals. By their superiority in this respect, and the heavier arms which that superiority enabled them to bear, an hundred knights were accounted an overmatch for a thousand light-armed horsemen.* But it is not only the history of their prowess, confirmed by the examination of their armour, that deposes in favour of the superior strength of the sons of ancient chivalry. Their corporeal remains have convinced careful observers of their herculean form. One of these observers, speaking of the bones preserved at Murten, as a monument of the victory of the Swiss over the Burgundians, remarks,

* C'étoit la Gendarmerie (that is, the heavy armed knights) qui faisoit toute la force de l'armée. Une ancienne chronique dit, que cent gendarmes suffisoient pour battre mille autres cavaliers, armés à la légère. *Encyclop. methodique. Art militaire. p. 557.*

that "the 300 years during which these bones have been exposed in great measure to the open air, have little affected their prodigious firmness of structure. Such bones and parts of bones as now moulder down in a few years of exposure, were evidently firmer than in the recent subject. From rubbing in my box they acquired, here and there, the polish of the enamel of the teeth. Out of the charnel-house at Murten, I selected skulls that attested the strength of the stroke by which, as appeared from the marks, the helmet was cut through, and which, being pierced in the orbits by the point of the spear, probably belonged to knights, since the spear would be directed against this, as the least protected part. I still possess these specimens; and I consider them as an incontrovertible answer to the question, *how these knights could wear armour, insupportable by the present race?*---They were more healthy and athletic than we are.

Of these reliques of ancient heroes, I chose some, in which the still growing teeth bespoke youth; others where the half-blunted teeth bespoke mature age, and others in which the advance of life appeared from the wearing down, and the loss of the teeth; a proof that the young and old could wear armour, under which our stoutest men could scarce stand. This singular firmness was common to all the bones, and therefore to both Swiss and Burgundians. In the armoury at Berne, I had before seen by thousands, helmets, breastplates, battle-axes, and swords, that were won in that battle. I conjectured that these arms belonged to a stouter generation than ours, and I found my conjecture verified by the bones themselves. In these observations there cannot be any fallacy, as no foreign matter has insinuated itself into the substance of the bones."

(*Ebell ueber die bleyglasur. Hannover, 1793. f. 220.*)

Hunting and hawking succeeded to the severer toils of chivalry, and prevented the higher classes from declining rapidly below the corporeal standard of their inferiors. Within these few years, we may have observed the rapid progress of indolent indulgences; exercise on horseback nearly abandoned for the use of easy carriages; the pernicious habit of desultory reading for amusement occupying many hours of the day; and those gratifications preferred, which can be enjoyed with least exertion.

The methods that have been introduced of transacting business with greater ease, the conversion of pasture into arable land, and perhaps other causes, have rendered the class of farmers less hardy. In Ireland, an evident change of this kind has taken place, under the eye of persons now living. For the following communication, I am indebted to a person of nice observation; the facts do not the less apply to the present enquiry, because no mention is made

of pulmonary disease. Consumption is not the only ailment to which the puny are liable; but in our climate, its frequency will be nearly in proportion to constitutional feebleness.

“ The observations I had mentioned to you, were made on the small gentry of a remote country in the north west of Ireland. Though they have uniformly indulged in the pleasures of the table to great excess indeed, they have enjoyed nevertheless a degree of health, which has always amazed me. Several, upwards of seventy years old, and some, in *extreme old age*, have assured me, that they never suffered a weeks’ ill health in the whole of their lives. These habits seem, however, to have been fatal to their descendants. Some have already fallen victims to intemperance, and some, under the age of forty, are palsied and greyheaded, and shew evident symptoms of premature decline. I could never observe any difference in their

general habits of living, except in the single article of more or less exercise: the old gentlemen, either from business or pleasure, passed almost every day in the open air, and on horseback: the juniors spend a more indolent and sedentary life, as from the encreasing agriculture of the country, they can procure a greater income by letting their estates to farm, than by pasturing them on their own account, as had been the usage heretofore; at the same time, that the consequent improvement and enclosure of the country throws obstacles in the way of the chase and other rural amusements."

The greater number of artificers, employed at sedentary occupations in close rooms, would alone be sufficient to justify us in affirming the greater frequency of consumption, upon the whole, in modern times. In comparing the manufacture of many articles of luxury with their destination, it would appear as if there existed

a solemn compact, in virtue of which one set of persons had engaged to destroy their health in making what another set were to destroy their health in wearing.

From the spirit of imitation it may be concluded, that the children of active parents would delight in feats of activity; and they would no doubt be encouraged in this propensity. A copy of verses, quoted by Mr. Strutt, from a manuscript in the Harleian library, would be decisive for the æra of the Tudors, with regard to the young of both sexes, if we could rely on the authority of the rhymers.

Auntient customs in games used by boys and girles, merily sett out in verse :

Any they dare challenge for to throw the sledge,
To jumpe or leape over ditch, or hedge;
To wrastle, play at stoole ball, or to runne,
To pich the barre, or to shoote of a gunne;
To play at loggets, nine holes or ten pinnes,
To trye it out at foote-ball, by the shinnes
At tick tacke, seize nod, maw and ruffe,
At hot cockles, leap frogge, or blind man's buffe :
To drink at the halper pottes, or deale at the whole can,
To play at cheffe, or pue or inkehorne

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To daunce the moris, play at barley brake,
 At al exploits a man can think or speake,
 At shove groate, venter poynte, or crofs and pile,
 At beshrew him that's last at any stile;
 At leaping over a Chriftnas bonfire,
 Or at the drawynge dame out of the myer,
 At shoote cocke, Gregory, ftoole ball and what not,
 Picke poynte, toppe and fcouge to make him hot.

The proportion of active games in this list, is fufficient for all purpofes of health; but it does not well appear how the *girdes* could partake in them all.

The ancient use of horfes, on occasions where carriages are now employed, must have given females some advantage in point of air and exercise. The passages which describe the feasts and sports of former ages, seem, if one may argue from the practice of the court to general practice, to shew that women were more ready to exert their limbs, and that life languished less, than at present. Thus immediately after dinner—

To daunce they went, all in fame,
 To se them playe, hyt was fayr game,
 A lady and a knyght ---
 Ther they playde, for sothe to saye,
 After mete, the somerys daye,
 All what hyt was neyr nygt.

Tilts, tournaments, mayings, hawking, archery and other diversions, if they did not put the ladies to much exertion, would take them abroad ; and they would the less shrink from the contact even of a cold atmosphere, from having been inured to unequal temperatures and streams of air in their open and ill-finished apartments, even if a warmer dress did not afford its protection.

All these topics would require to be treated with greater minuteness and with distinct reference to the several periods of our history. I cannot be certain that, on a strict search, no counteracting causes would be discovered. I can however think of none which could bring the constitution of that class of our predecessors which was placed above the want of necessaries, and particularly of the women, to so low an ebb of debility, as it has been reduced by modern usages.

The time perhaps approaches, when the

British fibre shall be restored to its pristine tone, and the disposition to consumption eradicated. But to this generation the remedy will be worse than the disease. By the privations which we can scarce now escape, and the disasters to which all feel that we are exposed, one portion of the feeble will be rendered hardy, but alas, it is to be feared, that another portion will sink under the trial. We are assured that hysterical and hypochondriacal disorders have lately disappeared from among the inhabitants of a neighbouring country. But at what a price has the exemption been purchased!

THUS I HAVE endeavoured to trace the principle of connection between the facts related in the preceding sections. Objections, good or bad, may be started against my explanation. Let it therefore be remembered, that the facts stand on their own distinct ground; and that no inter-

mediate reasoning is necessary to connect them with physical education, of which it is unquestionably, in this country, the most important object to eradicate all tendency to consumption.

Of the PHTHISICAL EXTERIOR.

Having said so much of the affinity between scrophula and consumption, I shall briefly mention the principal indications of a scrophulous habit. Before the complaint has fixed upon any particular part, scrophulous children have commonly a full countenance, large veins (which perhaps are a sign that the veins have less power than the arteries), ruddy cheeks, and usually, light eyes, with a wide pupil. The hair is soft; the nose thick, the upper lip swollen. The whole system is puny, and the flesh feels flabby; the body, however, is plump, and the skin smooth. Swellings of the glands are perceived about

the neck and a whole chain of tumours may often be traced in this part. Some of these tumours gather and break, and when one is healed, another near it gathers and breaks, and so on in succession. Pain in the ear, with a discharge of matter, repeatedly occurs. The eyes are apt to inflame, and the clear part of the eye acquires white opake spots, which shift from place to place. Many scrophulous children have quick and lively parts.

The disorder, however, shews itself in a different form, especially in poor families, where children are fed on water-gruel and potatoes. The countenance is then pale, bloated, and what medical writers term *cachectic*. The upper lip is particularly tumid. The eyes are dull instead of bright. Privation and pain necessarily produce ill-temper, and sometimes stupidity. As the want of food, sufficiently nourishing, and in sufficient quantity, first locally affects the stomach and bowels, where the disease usually breaks out, there are few

swellings about the neck, and these slowly gather. The child becomes what is vulgarly called *pot-bellied*. The lymphatic glands situated near the bowels swell. As the action of the glands is necessary to due nutrition, the limbs begin to waste; the patient pines for a time, and at last dies of atrophy.

The smoothness of the skin, and softness of the hair, indicate an original deficiency of constitutional vigor. There are authentic observations of persons, whose hair in health is curling and hard, but becomes straight and soft when they are ill. It was the case with Mirabeau, the well-known orator of the French constituent assembly.

The tumours, in all their degrees, appear evidently to depend on a too feeble action of the absorbents. The bloated countenance is a first degree of dropsy, the moistening liquid of the cells being exhaled in greater abundance than it is in-

haled. The swelling of the upper lip, and thickening of the nose, depend partly upon this cause, partly perhaps upon the enlargement of a variety of glands that are situated there, which receive more liquid and more solid matter from the arteries, than the absorbents carry back.

On the enlargement of the pupil, which has been mentioned as a mark of the scrophulous temperament, and as a sign of consumption, it is proper to add a few remarks. In strong people, all the muscular fibres have more *tone*, or are habitually more tense, or stretched, than in the weak. The iris partakes of the general condition of the muscles. The pupil is smaller, as the iris is more stretched, and the reverse. The inspection of the iris, therefore, seems to prove neither more nor less than the grasping of the arm, the state of the muscles of that member being perfectly ascertainable by the hand. Perhaps the appearance of the iris is the more fallacious

case usually breaks out, there are few

of these two tests. For besides the effect of a strong light in diminishing, and of a faint light in expanding the aperture of the pupil, the smallest inflammation, or sense of heat about the eye, is almost sure to cause a contraction of the pupil. Other affections of the iris from association, are described by medical authors. All these render the inference from the state of the pupil, to the state of the constitution, less certain. And I do not perceive that the condition of the larger muscles, when the limb is examined in a given position, is liable to equal variations.

When mechanical ingenuity shall be applied to its most worthy object, the living system, exact measures of the tone of the muscles will, in all probability, be invented. Thus, a bandage encircling a fixed part of the arm, by means of a noose, and having a weight appended to its end, might give a measure of the tension of the muscles which it encompassed. A deeper

impression will be made upon the arm, as the habit is weaker, and the weight would consequently sink lower. I mention this as a proof of the possible application of exact measures, to the living system. Ingenious men will contrive others more appropriate and exact.

A certain conformation of that part of the body within which the lungs are contained, is justly reckoned among the most unfailing marks of a disposition to consumption; and particularly a narrow chest. This is often accompanied with a long neck, and with shoulder blades standing out like small expanded wings. The appearance of the shoulder blades seems to depend merely upon the state of the chest, since they cannot adapt themselves so closely to a narrow, as to a broad chest. The long neck is less constant, and is seen sometimes to accompany a well-formed chest.

The narrowness of the chest is, I believe, generally supposed to straiten the lungs in

their play during respiration, and hence to injure their substance, so as to occasion pulmonary consumption. This seems to me an erroneous idea. During the opening of dead bodies, I have always observed, that in the narrow-chested, the cavity of the thorax has been as well adapted to the size of the lungs, as in the broad-chested. Were it otherwise, I conceive that this organ would not wait till the age of puberty before it became ulcerated.

Narrowness of chest immediately depends on a weak action of the powers that form this part ; and is often an hereditary fault of conformation. Hence the whole exterior and interior of the chest, are ill-finished ; the ribs not sufficiently arched, and the structure of the bones less solid. The debility of the soft parts continues, and at a certain period, tubercles are formed.

Mechanical means, therefore, of widening the chest, in behalf of the compressed lungs,

appear to be a misdirection of our endeavours to prevent consumption. If the original conformation can be improved, it can only be done by a treatment calculated to render the whole system more robust. There is no advantage in the use of the dumb bell, beyond any other exertion that employs the arms; and as swinging weights must always be a task, and will never be performed with ardour, and but seldom with perseverance, it is better not to put young people upon it at all. Exercises which have some near object in view, level to their comprehension, and agreeable to their feelings, should always be preferred, even when we regard health.

BLEEDING at the NOSE.

Among the earlier marks of a consumptive tendency, frequent bleeding at the nose, without any external violence, may be properly reckoned. This takes place

commonly in young persons of a puny habit, with black hair and black eyes. It is not, however, always confined to this temperament. The cause appears to depend upon a want of equality in the powers of the arteries and veins, precisely similar to that disturbance of the balance between the arteries and the absorbents, which has been already described at large. The observation, that this inequality shews itself in earlier years in the nostrils, and seldom till towards puberty, in the lungs, looks like a strong corroborating proof of the opinion, *that there is in childhood some constitutional cause of equilibrium between those vessels of the chest that carry liquids from the heart, and those that carry them back; which in certain constitutions is destroyed after the period of childhood is past.*

It was formerly supposed, that these spontaneous bleedings from the nose arise from too great force of circulation; and that those who are subject to them re-

quire a *cooling* regimen, and a strict vegetable diet. It is, however, easy to see that these accidents *may* easily happen when the circulation is generally weaker than in the healthy state of robust people, provided only one set of vessels is feeble in comparison with the other. The arteries may convey blood with a less than the average impetus. Yet if the veins carry it back much more slowly, a hæmorrhage will take place. To be convinced that *spontaneous* bleedings from the nose and from the lungs do not arise from excess of constitutional vigour, it is only necessary to look at the persons to whom they seldom or never occur. It is not to the sturdy husbandman, the nervous porter, the full-fed butcher, the able-bodied seaman, the amazonian fishwife. They are strangers to these attacks. In confirmation, it may be added, that this spitting of blood usually happens in the early morning, when the movements of the animal machine are more tranquil

than at any other season of our waking hours. I have observed, that neither bleeding from the nose in early youth, nor spitting of blood about the time of puberty, are limited to the temperament marked by dark eyes. In proof of this assertion, I could relate three distinct cases. But the following curious instance, which seems to connect the *hæmoptoic* with the scrophulous variety of consumption, will be sufficient.

Miss D——, a young lady of a consumptive family, had in her childhood, frequent and copious bleedings from the nose. About the age of 18, she spit blood repeatedly in small quantities about the time of rising; a cough, with expectoration of matter and hectic fever supervened. I saw her when she was far advanced in consumption. She had at that time, a large scrophulous tumour of the lymphatic glands above the clavicle.

Left what is here said of the spitting of

blood in dark eyed persons of a phthifical habit should be misapprehended, I must advertise the reader that the spitting of blood, which *precedes* consumption, is alone to be understood. In the consumptive of every temperament, spitting of blood and more copious discharges of blood from the lungs happen—in consequence, no doubt, both of the encreasing debility of the veins, and of the injury the blood vessels receive from the progress of pulmonary ulceration.

It is also necessary to add, that blood-letting in cases of frequent and considerable losses of blood from the nose, may be in the first instance necessary. But when rendered ever so necessary by obstinate continuance, or alarming returns of the complaint, it should only be considered as preparatory to a regimen for rendering the habit robust, which can never be effected by long perseverance in a low diet.—In some constitutions, it has been accidentally dis-

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covered that procuring discharges from a distant organ has prevented a discharge of blood from the lungs. A saline purgative, for example, taken almost every day for many years, has been thought upon good grounds, to prevent hæmoptoe in one or two instances. But by this, nothing was gained towards the extermination of the tendency to consumption. The parties have continued incapable of much exertion or enjoyment. And in the case of children at least, the precarious tenure of a valetudinary life would be but a heartless motive for continued care.

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With firm resolution on the part of enlightened parents, when those parents happen to be in affluent circumstances, children may be brought up hardy and comparatively robust. Their feelings are

all in favour of the plan that would terminate in this result. That method of education which makes them sickly, by precluding the free use of their limbs and their senses, puts the most violent constraint upon their inclinations; and their demeanour acknowledges existence as a blessing, only during the suspension of their cruel and pernicious imprisonment.

It is otherwise in more advanced years, especially with women. The springs of their constitution have lost their force from disuse. Nature has been compleatly subjugated by habit. Except under the operation of extraordinary excitements, (for at the idea of a ball, even the Creole fair rouse from their languor) they shun with abhorrence every exertion that approaches to labour, and cherishing their fatal indolence, fall into consumption, or are suspended, by some cruel disorder, over the gulph.

But at what, if they were ever so willing to essay their unaccustomed muscles,

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(I beg pardon for the expression) shall ladies labour? Yet he who established it as a maxim—that *the Gods sell all good things for labour*—if the state of society, in which he lived, had required him to be more pointed and particular, might have laid it down that *the Gods do not sell health, the best of things, but for labour*.—What is wanted, is a series of occupations, lasting and not liable to become wearisome. The employment of turning within doors, and of gardening without, may be well recommended to those who can command a lathe and a garden. The female sex are deeply indebted to that humane and enlightened physician who has attempted, in such a variety of ways, to facilitate botany, and to render it engaging. It were to be wished, that by any inducement, the elegant and healthful study of plants could be made to supersede the too great devotion of our female youth to music. In its present state, it is to be lamented that botany

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is a pursuit that too frequently either proves distasteful to beginners, or soon terminates, because there are few spots that do not cease to supply objects to the industrious student, when she stops short of the class, *cryptogamia*.

To the justness of this objection, I am afraid that the feelings of many ladies must bear testimony. There is, however, every reason to expect, that the opprobrium will shortly be removed. Chemistry, which every day bestows the refreshing gloss of novelty upon the objects, most sullied by long use, is even now ready, by its inexhaustible power of producing interesting changes, to relieve the insipidity and poverty of Linnæan science. With moderate ingenuity, joined to some acquaintance with botany and chemistry, it is in the power of almost any female, who resides in the country, or in a country town, to assist in laying the foundation of the science of PHILOSOPHICAL HORTICULTURE.

What resource domestic games, such as shuttlecock, can afford, is sufficiently known to the reader. I cannot hope that my recommendation will give them any additional zest. It would greatly contribute to health, and not a little to immediate enjoyment, if any new games of exercise could be invented, or any old ones revived, in which the heavy time of evening visits might be passed. The first attempts to put in practice such an innovation, would appear irresistably ridiculous, even to the parties most convinced of its utility. But would any thing imaginable appear more ridiculous than dancing, if familiarity had not taken away its power to produce laughter?

THE BLOOD-WARM BATH.

The free use of the warm bath among the nations of antiquity, to whom the care

of the person was so important, has often struck those who have compared their manners with ours. The ancients, particularly the Romans, bathed full as frequently as we wash. The learned French physician and antiquarian, Laurence Joubert, has collected many instances of Romans of distinction, who bathed four, five, six, and even eight times in the day. Every one bathed at least once. The prohibition of the bath was numbered among the mortifications to which certain priestesses in Greece were bound by the rigid rules of their order. (*Marcard ueber die Baeder*, 1793. f. 26).

“The English (says Mr. Strutt, iii. 70), like their ancestors, were very fond of bathing. Many of the nobility had baths for that purpose in their own houses. Besides these, there were public baths in different places, to which those who could not afford to have them in their own houses usually repaired. The ladies apprehended

that bathing contributed to, and preserved, their beauty. For I find in an old manuscript book of prognostications (written as early as the reign of Richard the second), the following advice to the ladies;—that in the months of March and November, they should not goe to the bathe for beutyte."

That a custom, so consonant to the perpetually increasing taste for refinement and luxury, should so entirely have gone into disuse, would be matter of surprize, if the cessation of the leprosy on the one hand, and on the other, the dread of being infected by a different disease,* did not sufficiently explain the change.

*" The leprosy gave rise to the institution of a great number of baths in Germany. As want of cleanliness for the most part occasioned the diffusion of the infection, frequent ablution served as one of the most effectual means of prevention, for which purpose it is also enjoined in the police laws of the old testament. As much as the bath had been in use among the ancient Germans, so much was it neglected in this period (from 1144 to 1417.) How difficult it proved at that time to habituate men to cleanliness,

In the mean time, medical hypotheses have spread from the writings of physicians, and caused that to be avoided upon principle, which was given up partly because the urgent necessity for it ceased, partly because the circumstances of the times sometimes occasioned serious inconveniences to be felt from its promiscuous use.

In the whole doctrine of physical education, and in all that relates to the care of health, subsequently to the period of

is apparent from the trouble taken by sovereigns and the priesthood to introduce bathing.

The clergy converted bathing into an act of religion, and persuaded the people that they could thereby wash away their sins and obtain absolution. Such baths were named baths for the soul (*balnea animarum* and *refrigeria animæ*). In many monasteries baths (*stube balneatoriiæ* or *vaporaria*) were established, and bequests left for the soul-baths. By virtue of these, the poor people were admitted at stated hours to bathe gratis, either in the cloisters or in the baths of the town, or in the hospitals. They were likewise cupped or bled when they desired, and afterwards fed, or presented with bread, beer and salt; and this for the benefit of the soul of the founder, and for cooling it and alluaging its sufferings in the fires of purgatory.

maturity, there is nothing, after the consideration of diet, air, exercise, and cloathing, that applies more immediately to the subject of the present treatise, than the effect of baths of different temperature. Nor is there any thing, perhaps, belonging to the conduct of life, which is generally so ill-understood. Physicians themselves are but just forsaking the false analogies of their predecessors, and a few of the most inquisitive reverting to unbiassed observa-

In order also to bring the knights to cleanliness and to get rid of their filthy long beards, no knight could be admitted to any order, or any new knight created, unless he had bathed, and caused his beard to be taken off, the evening before.

Since the use of linen shirts has become general, and every one has provided for the cleanliness of his own person, these laws of police have become superfluous; and bathing, being no longer a part of the duties of knighthood, or of sumptuous marriage ceremonies, and having no connection with the welfare of souls in purgatory, has fallen too much into neglect. The venereal disease has probably contributed to the disuse of public baths."

Moser Geschichte der Wissenschaften in der Mark Brandenburg. pp. 283—286.

tion. Ideas on this subject, approaching to accuracy, are very rare among the faculty.

For these reasons, I shall consider with some attention the operation of water, heated to different degrees, upon the living system, and bring together such authorities and facts, as cannot fail to remove erroneous preconceptions from minds open to the truth; and if they do not overcome the public indolence, sufficiently to occasion the adoption of salutary measures to any great extent, they will at least sufficiently deter from such practices as are greatly prejudicial.

The inducements for believing that the blood-warm bath almost universally weakens, and that the cold bath strengthens in nearly the same proportion of instances, would be too contemptible to mention, if they had not produced, in this country, a persuasion nearly general. In some cases, the conclusion seems to have been drawn from a substance, so little allied to the

living body, as steel; and I am not sure if the term *hardening* has not had its effect in making this analogy pass with some people. So liable are those to be deceived, who do not attend to the sort of resemblances they combine in their reasonings! Formal experiments with leather and parchment have been instituted, to determine the *bracing* effect of cold water. But they are evidently nothing to the purpose; and, in the instance of leather, it has been found that water at the freezing point, and water at 95°, equally lengthen it; and that strips of parchment are rendered thicker and shorter, by water of both temperatures. These effects are, indeed, produced not by the temperature, but by the mechanical action of the fluid, which insinuates itself into the substances. (*Marcard*, l. c. pp. 44—60). The observation, that a ring upon the finger becomes looser in the cold bath, shews that the skin, or if you please, the whole joint, contracts,

In the blood-warm bath, the ring scarce becomes tighter, if the hand be not cold before going in. In the hot bath, that is, the bath some degrees above the heat of the body, it becomes evidently tighter, probably on account of the enlargement of the blood-vessels, from the stimulus of the heat, as we see in the hot fit of a fever. This effect takes place in a small degree, in blood-warm water, particularly if the hand be previously chilled. But such changes have no necessary connection with the increase or diminution of the strength. These remain to be determined by new observations, as much as if no experiment with the ring had been made.

However those who never use it may choose to speculate upon the tepid bath, experience, in places where it is employed with almost incredible perseverance, is decidedly in favour of its strengthening power. At Pfeffers, in Switzerland, (which is esteemed one of the purest of all

waters from impregnation), *from seven to twelve hours are daily spent in the bath, and this upon the average is continued for a couple of months. Dr. Tissot says he has been very credibly informed, that at a bathing place in the Valais, patients pass the greater part of the time of their residence in the water. Dr. Marcard attests, that at Baden in Argow, he has himself seen invalids sit four or five hours in the bath. The latest writers concerning the warm bath at Landeck in Silesia, where the bathers are immersed up to the chin, dissuade from too long a continuance in the water. They think six hours sufficient at one time. The usual course here is of four, five, or six weeks. Those who use

* At Pfeffers and most of the Swiss baths, it is only the lower half of the body that is immersed. However the upper part is exposed to an atmosphere of warm vapours, which according to the hypothesis of relaxation ought to have as bad an effect as mere warm water.—See Marcard, l.c. p. 64.

these several baths are, in common, weakly,* nervous people, such as instead of recovering their health (as they actually do), ought to be dissolved altogether, if the warmth gave to the water had a relaxing operation. To many medical men in this country, such relations will appear as paradoxical, as to the generality of uninstructed readers. There can, therefore, be

* To shew to what extent that active enquirer into the effects of bathing whom I so frequently quote in this section, has carried his practice in cases of weakness, I shall transcribe one of the cases he relates. A woman about 30; had suffered excessively during three years from pain, anxiety, spasms and sleeplessness. She took very little food, had, at times, a little feverishness, and was greatly emaciated. For a year she had never been regular. The utmost effort to which she found herself equal, was sitting up in an arm chair, supported by pillows. She required to be turned in bed. She had taken a great deal of bark and other medicines. The disorder had not the appearance of consumption, nor of any incurable lesion of the abdominal viscera. Long continued and great exertions in attending the sick had preceded this illness.

From recollection of somewhat similar cases, the author resolved to recur to the tepid bath, notwithstanding the extreme debility and the prejudices against it. "I did not," says he, venture to repeat the baths in quick succession, on

no occasion to add a warning against a rash imitation of the Swiss practice of bathing. The knowledge of the facts may however suggest useful reflections, and do away some of those prejudices that cramp the practitioner of physic in his operations, and in both these ways contribute to the ease of the afflicted.

But an outlandish fashion of soaking will scarce sufficiently recommend the

account of the patient's weakness and of the effort, attending the operation. Several days were interposed between every two immersions."

"The first trial produced visible benefit. The patient said, *She felt stronger after it*; and from that day forward, she slept better, though she went into the bath with some dread, having never before used it. After the sixth bath, that is in about a fortnight, to my astonishment, she was able to rise from her chair. She daily acquired strength under a continuance of the bathing, became regular, and in two months, was perfectly well, and has continued so these three years.—In such a situation, I never saw a more striking effect from bathing. But how the doctrine of relaxation and reduction of strength will apply here, I must leave to others to decide." Marcard l. c. pp. 57—60—The author says he gave medicines at the same time, but does not specify what they were.

warm bath in England. And as this is the point on which the reader is most likely to be scrupulous, I can with less propriety desert the plan with which I set out; viz. of endeavouring to convince his judgment, instead of placing entire reliance upon his faith. I shall therefore lay before him some precise information, concerning the effect of the tepid bath on the organs that keep the blood in circulation. This is of the greater importance to the present enquiry, because in the phthetically disposed, the pulse is usually overquick, especially when they begin to fall off from their ordinary health. For the facts, I shall be indebted to Dr. Marcard. But it may perhaps add to the authority of his report, if I mention, that before his interesting work fell into my hands, I had made observations of the same kind.

I. Dr. Marcard's first experiment was upon a young man, in a complaint attended with emaciation; whose pulse was

usually somewhat feverish. After sitting perfectly still in his apartment, where the temperature was scarce 58° the pulse was 98 in a minute. The bath was heated precisely to 96° . After being in it eight minutes, the pulse was 92; in thirty minutes it was 88; and he remarked that he felt very comfortably.—By evening, the pulse had regained its former quickness.

2. A girl of 12, had a pulse of 96 in a room at 74° . After being in the bath half an hour, her pulse was lowered to 80.

3. A lady of 36, of a vivacity unusual in a northern climate, had a pulse of 84, which was its usual standard. She had never bathed; the idea therefore, excited a degree of terror, on account of which, and of a degree of nausea, she took a glass of wine beforehand. Nevertheless, in half an hour, her pulse, in a bath at 94° , fell to 72. The heat of the room was 69° .

4. Dr. Marcard himself, with a pulse of 70, went into a bath at 93° , the room

being at 70°. Having been accustomed to cold water, the bath felt too warm, and produced a sense of anxiety and spasm (about the chest I presume). He had the bath, therefore, lowered one degree, and in half an hour the pulse beat only 60 strokes in the minute.

5. A lady of 38, in a room at 74°, had a pulse of 78 before bathing. After half an hour's continuance in water at 92° (which to her was an agreeable temperature) her pulse was brought down to 70.

6. A man of 50, in a room of 78°, had a pulse of 73. After continuing half an hour in a bath at 92°, which he felt rather too warm, his pulse was but one stroke slower.

7. An hypochondriac of 60, in a room at 76°, and under some oppression, had a pulse of 96°. After three quarters of an hour's continuance in a bath at 90°, his pulse was but 68°.

8. Two days afterwards, the same per-

son, in a room at 72° , had a pulse of 80. His bath was 89° , and at last but 88° . He continued in it for an hour; and getting out had a cold shivering. Nevertheless, when this had gone off in bed, I found his pulse only 60.

9. A lady of 27, exceedingly nervous, and much troubled with spasmodic seizures, had a pulse of 96, in a room at 73° . After being 25 minutes in a bath at 90° , her pulse was still 96. In 35 minutes it was 94. She had great dread of the bath.

10. In three quarters of an hour, the same person's pulse rose from 80 to 92, in a bath of 90° . But she had spasms. This is the only time except once, that the author observed the pulse to rise in a bath of this temperature; but he observes, that a person may be taken ill, when bathing. Perhaps the too low temperature occasioned the indisposition in this instance.

11. The same lady bathed again, two days afterwards; the water was at 91° ;

the pulse 98. In three quarters of an hour, it fell to 80. The author adds, that this debilitated, morbidly sensible or nervous female, who had been long ill, and had tried various remedies to no purpose, recovered after a course of bathing, of a month's continuance.

12. Dr. Marcard went into a bath at 89° , his chamber being 72° , and his pulse 63. In an hour and half, he counted only 54 pulsations; his feelings being highly pleasant at the time, which in his then state of health was uncommon.

13. An excessively nervous young Russian, took the bath one day when he was irritated by the warmth of the weather, and by his spasms. His pulse was 104, the room at 77° , the water at 90° . In 20 minutes, his pulse was only 64.

14. A very sickly child had a pulse of 144, in a room at 60° . His bath was at 88° , and in 20 minutes his pulse was only 116.

15. A very striking diminution of the pulse was observed in a child of seven years and a quarter, who lay in a hopeless state of stupor and convulsion, and actually died in sixteen hours after. The pulse could not be accurately counted without the greatest difficulty. In every 5 seconds, there were more than 16 pulsations; in a minute, therefore, about 200. The child was put into a bath at 93° , because the thermometer, under his armpit, rose no higher, and the temperature seemed perfectly agreeable to his feelings, as he was perfectly quiet in the bath. In half an hour the pulse was sensibly slower, and more distinct; and in an hour, the author could count 140 strokes in a minute. It had therefore, in this time, fallen 60 strokes in the minute.

16. A lady whom her physicians had declared to be hectic, because her pulse was quick, and her flesh wasted, consulted the author. Her pulse, he says, was always

100--106, and occasionally rose to 120 and above, at which time she felt extremely ill. The slightest movement produced this quickness of the pulse, without the feelings of extreme illness.

Before the first immersion, the pulse was 120. The water was heated to 94°, and in half an hour the pulse had not lowered above one or two strokes. That evening and the next morning, it was 96; Dr. Marcard had never found it so low before.

“Before the second bathing, the pulse was 120, and in the bath 122. At first I imputed something to dread of the bath; but the effect continued, though I reduced the bath to 90°. The pulse was almost always quicker the day of bathing. On the whole it was slower, but always quicker in the bath. After the twelfth bathing, it was constantly at 94° out of the bath; but the thirteenth time of bathing it beat 106 times. The health of this patient was soon fully restored. She became perfectly

regular, after having for a year ceased to be so. Her pulse, however, continued preternaturally quick, never falling below 94, and sometimes rising to 116. After a lapse of some months, I for the first time, found the pulse perfectly natural, though still disposed to rise from slight causes."

17. The following equally striking, and ultimately successful experiment, affords a convincing proof that the reduction of the pulse in the last case but one, was not the effect of some unobserved cause, but depended on the warm bathing. "A child, three years old, (says the author) had a violent seizure, attended with vomiting. The usual means were employed, and the feet frequently bathed. The fever continually increased, though even in the open air. In 36 hours, the pulse had increased to 156, and in 48 hours, it could no longer be exactly counted. I could only number it for five seconds together, in which there were always 15 or 16 strokes, that is, between

180 and 192 in the minute—a formidable degree of fever, announcing a highly dangerous illness. The child was at the same time excessively ill and restless. According to my ideas of practice, I could oppose nothing to these threatening symptoms, but the warm bath; and I began to reproach myself for not having had recourse to it sooner.-----I therefore had a bath prepared in the middle of the night. I was doubtful what temperature to employ, as the child was preternaturally heated.-----

A very accurate thermometer, made by Ramsden, placed in the child's hand, which I then grasped with my own, rose to 100°. Hence, I fixed upon 94° for the bath. The moment the child was put in, some cructations were observed, and it seemed much quieter. In a quarter of an hour, I counted 148 pulsations in the minute. In half an hour they were 136 only. In three quarters of an hour, the same. The bath was now cooled one degree. In 50

minutes, the child manifested a vehement desire to be put into bed, and so it was taken out of the water. It was wonderfully quieted by the immersion. For 24 hours, it had done nothing but moan, cry, and fret, contrary to its usual mood. On being placed in bed, it was all at once tranquil, seemed to have no unpleasant sensation, and good-humouredly wishing every body good night, fell asleep, as if in sound health, had an almost natural respiration, and did not stir. The pulse did not return to its former quickness. Six hours after, it was at 148. The small-pox now appeared, and was very severe. "Whether the disorder would have been fatal, if the fever had continued to rage with equal force from twelve till ten o'clock next morning, which was the hour of the eruption, and whether earlier and more frequent bathings would have lessened the disorder, I cannot decide, though I think it probable." The author relates, moreover, nine ex-

periments with baths of a temperature between 82° and 60° ; and one experiment at 98° and 100° , in which last the pulse was increased from 12 to 14 strokes in the minute.

He draws the following general inferences.---1. Every bath below 96° , diminishes the quickness of the pulse, when no particular circumstance occurs to prevent this effect. 2. The greater the frequency of the pulse beyond its natural rate, the more it is diminished by the bath. It must, however, be observed, that in several of the preceding cases, the entire diminution cannot, by any means, be referred to the bathing. The pulse had sometimes been raised by motion, fear, or spasms, and would of itself, after some time, have subsided. The temperature which seems to have the greatest power of reducing the pulse, is that between 96° and 85° of Fahrenheit's thermometer. This the author terms *warm*, or *tepid*---(*warm* oden *lauwarm*). And he

uses the term *seems*, because he has few accurate observations on cool and cold baths. He never continued the cool so long as the tepid bath, and therefore cannot say what they would have done in the space of an hour.

On the change produced upon the respiration by bathing, this diligent observer makes several pertinent remarks. The effect is more difficult to be determined than in the case of the pulse. In general, he says, *after some time*, the breath grows slower. But in unaccustomed, and nervous people, it is long before the quickness, immediately subsequent to immersion, and occasioned by the pressure of the water, is over. And even when the breath is very slow, a somewhat greater effort may be observed during the *inspiration*, and a sudden impulse at the end of the *expiration*. "I have (he concludes) too often noticed the slowness of respiration in the tepid bath, to entertain the slightest doubt of the fact, though

I have not ascertained the degree by a stop-watch.-----When a general calm is produced, it is natural that the function of respiration should participate in it; besides, the breath *must* be slower, because the pulse is retarded. That in persons who go with dread into the bath, the breath will be quickened, as long as this state of mind continues, it is easy to foresee."

In circumstances of great debility—towards the end of low fever, for example—other recent observers, as Dr. Brandis (*Journal der Erfindungen*, v. 13. 1794) assert from experience the benefit of tepid immersion, and particularly the reduction of the pulse as much as 16 or 20 beats in a minute.

Among the examples that tend to suggest just ideas of the power of the tepid bath, I have been struck with none more than by that which Dr. L. Frank, Physician to the great hospital at Milan, has recorded in a foreign journal (*Salzburg Med. Chir. Journal* f. 1795. ii. 70).

“ Among the variety of considerations, says he, which Dr. Marcard alledges to prove that the tepid bath strengthens in place of weakening, as has been heretofore supposed, I question if there be any so well calculated to support his opinion as a fact perfectly familiar to us in Italy. It is well known that of the disease called *Petagra*, which is exceedingly frequent among the peasants of Lombardy, one of the chief symptoms is excessive debility. This debility cannot be more certainly removed by any means than by the use of the tepid bath. It is so great, that many patients are obliged to be carried, though the bath is not above forty paces from the ward. Many who can walk are yet so weak, that they cannot get into the water without support. The appearance of these people at going in and coming out, is truly miserable. Without being led by the attendants, they would stagger like drunken persons. In the space of four or at most

of six weeks, they are commonly so much restored by the use of the warm bath, as to be able to return to their friends and their ordinary employments."

In a question of importance to his happiness, but foreign to his pursuits, a prudent man will withhold his practical assent from proofs, apparently the most cogent; and in dread of latent fallacy, may reasonably require that the suffrages of competent judges should be added to the evidence of facts. On this account, I have accumulated the preceding experiments and authorities; and I do not deem it superfluous to subjoin the sentiments of an observant physician in our own country. They are in the main, perfectly similar; and as the English and the foreign medical philosophers named above, had no mutual communication, their coincidence will inspire the public with greater confidence. "The use of a warm bath, says the author of *Zoonomia*, (ii. 684) of about 96 or 98

degrees for half an hour once a day, for three or four months, I have known of great service to weak people, and is perhaps the least noxious of all unnatural stimuli; which however like all other great excitements may be carried to excess, as complained of by the ancients.* The unmeaning application of the words re-

* Dr. Marcard, bestows much elegant learning on an investigation of the sentiments of the ancients regarding the tepid bath. He quotes a dialogue from Aristophanes, in which one of the characters says, "*I think none of the sons of the Gods ever exceeded Hercules in bodily and mental force*?" upon which the other asks: "*where didst thou ever see a cold bath dedicated to Hercules?*"—Dr. Marcard thinks it impossible to ascribe so wild an absurdity to the ingenious and consistent people of antiquity as to make them consecrate to the God of strength, what they held to be so miserably debilitating as we do.—They must therefore have believed warm baths to be capable of strengthening the system. And on account of their constant use, they could be at no loss to judge. When the ancients number the warm bath among the luxuries that render effeminate by too frequent repetition, they always speak of their abuse; and do not understand physical but moral relaxation. If a physician now and then remonstrated against bathing, it was out of charlatanerie, contradiction or want of discrimination; and he was sufficiently confuted by universal experience. pp. 32. 37.

laxation and bracing to warm and cold baths, has much prevented the use of this grateful stimulus; and the misuse of the term warm-bath when applied to baths colder than the body, as to those of Buxton and Matlock, and to artificial baths of less than 90 degrees of heat, which ought to be termed cold ones, has misled the unwary in their application.

The stimulus of wine, or spice, or salt, increases the heat of the system by increasing all or some of the secretions; and hence the strength is diminished afterwards by the loss of fluids, as well as by the increased action of the fibres. But the stimulus of the warm bath supplies heat rather than produces it, and rather fills the system by increased absorption than empties it by increased secretion, and may hence be employed in almost all cases of debility with cold extremities, perhaps even in anasarca, and at the approach of death in fevers."

"When Dr. Franklin, the American

philosopher, was in England many years ago, I recommended to him the use of a warm bath twice a week, to prevent the too speedy access of old age, which he then thought he felt the approach of; and I have been informed, that he continued the use of it till near his death, which was at an advanced age."

My experience of the blood-warm bath extends to a considerable number of cases, particularly of persons who from the loss of relations by consumption, with obscure but alarming feelings of indisposition, or with some of the more evident symptoms, dreaded an attack of the disease. Sensible benefit was received by most; permanent benefit by several; injury by none. The reduction of the pulse during the time of immersion, was perfectly ascertained in a number of instances; and the strengthening effect of the bath was sometimes so apparent, that several of those whom I desired to bathe every other day, have assured me,

that on the day of bathing, they felt capable of greater exertion than on the following or preceding day.

My directions generally were that the temperature should not exceed 96° ; nor be below 92° ; but between those limits it should be that most agreeable to the patient's feelings. And every one who has tried knows how sensibly the difference of a single degree is felt. The time which I have generally recommended for bathing, has been between breakfast and dinner. For I have known an increase of pulse and a degree of feverishness produced after dinner, by water at a temperature at which it would not have had any such effect when the stomach was not full. There is another disadvantage with which late bathers are threatened; namely, night-sweats, which when it is the object to strengthen, ought most carefully to be avoided.

The rule which I have commonly laid down for continuance in the bath, has

been to quit it the moment any unpleasant sensation is felt: but if no such sensation takes place, by gradual prolongations of about a quarter of an hour each time, to stay in for a full hour. This is said in a supposition that the first trial will be for 20 or 25 minutes.

On coming out, no other precautions are necessary than prudence at other times would dictate. As perspiration must be sedulously avoided, no load of additional cloathing is admissible. And whatever cloathing the season requires, will be sufficient for the bather. In many scores of instances where a person has walked abroad immediately after the blood-warm bath, just as if nothing more than ordinary had occurred to him, I have not known one in which a cold was taken. I rather think a person more secure from such an accident after bathing.

In advanced consumption, I consider bathing as too hazardous to be lightly

tried. Two years ago I attended two young men, accustomed to communicate their complaints to one another. One was in the last stage of consumption, that is, in addition to the other usual symptoms, he had some evening swelling of the feet. The other was just upon the verge of the disorder, into which exposure during military service, afterwards precipitated him. By my advice he used the tepid bath, and seemed to himself to receive so much benefit, that he boasted of it to his acquaintance, who was induced by this information, in spite of all my remonstrances (for I was alarmed for the immediate issue of the trial), to go into the bath also. He coughed with excessive violence, and breathed with great difficulty, while in the water; and thought himself considerably worse in both these respects for two days. His ill success in the first, deterred him from a second experiment. I mention this instance, as a caution to

the consumptive not to plunge into the tepid bath in consequence of the preceding general recommendation, without being well advised. For I think that in cases, and at times when the pressure of the water is not likely to provoke coughing, it may give relief; and in one case of a child in whom consumption had succeeded to the measles, I found it reduce the pulse full 20 strokes in the minute, ease the difficulty of respiration, and procure a general feeling of relief for several successive days. But I went to work with every possible precaution, and was prepared to remove the patient the instant any sign of distress should appear.

There are always points which must be left to discretion, exercised upon the variety of constitutions and of circumstances. Whether the bath should be daily taken, is one of these points.

Weakly people, who have leisure and convenience, may bathe every day, as long

as they find their strength improve. They may then discontinue the bath, and after an interval, resume it. From the example of the ancients, and of the Eastern nations at present, it may be gathered, that our ordinary summer heats need not interrupt the course; and indeed I have known it persevered in with apparent advantage, through the summer. But should any previous apprehension exist, or any suspicious feeling arise, the warm bath may be discontinued during the most oppressive summer days; of which we are not often troubled with a long succession.

The *hot bath* can never become part of the regimen, proper for the feeble, when age or constitution seems to threaten pulmonary ulceration. As far as the investigation of the powers that actuate the living system has hitherto gone, we have no reason to suppose that this remedy can be employed, with probability of advantage, in phthysical cases, unless great external

warmth might prevent or stop the cold fit of hectic fever, which is a question foreign to the present tract.

BED-WARMTH.

A person in bed is in a blood-warm bath: and if in health, after a continuance of seven or eight hours, he finds himself recruited. It is remarkable that this familiar fact did not render the hypothesis of relaxation doubtful. On account of sleep, and of the decumbent posture which eases the muscles much more than the support afforded by water does, the cases are dissimilar. The analogy, however, is one of those that are most apt to strike inaccurate reasoners; and I certainly think it deserved from the philosopher more regard than any of the arguments in favour of the weakening operation of the tepid bath.

Should the heat of the body rise above the ninety-sixth degree, as it sometimes does considerably, the bed becomes a hot bath, with all the stimulating, and to many constitutions, pernicious properties of the hot bath. If a person thus circumstanced, continue long asleep, he either falls into perspiration, or awakes feverish and unrefreshed. If perspiration have broken out, the linen should be changed, and the person should remove to a dry part of the bed. In the case of heat of the skin, without moisture, advantage should be taken of the cooling effect of the atmosphere, either by rising, or by diminishing the bed-cloaths. I know no rule of health, to which stricter attention ought to be paid, than this: *when a person of feeble habit feels heated in the morning, let him rise without a moment's delay.*

By sound sleep, the susceptibility of the system is so much increased, that a temperature, at other times beneficial, may

be injurious after rest. The morning nap, after which weak people often find themselves more fatigued than on going to bed, should be avoided. The temperature of the body, under this circumstance, well deserves to be ascertained. But I apprehend there exists another cause, which I dare not undertake precisely to assign. For we may frequently observe the nervous (that is, those who are weak, with excess of sensibility) frequently heavy in the morning, a little enlivened towards noon, and in the highest spirits at midnight. This is the effect of the stimuli that operate during the hours of waking. The morning torpor arises in some way from the too long subduction of these stimuli, as the absorbent glands in ill-fed children lose their power for want of stimulation, and as the appetite and digestion are destroyed, when a proper supply of aliment is withheld from the stomach; a case in former years not uncommon among young wo-

men too intent upon a slender shape, and at boarding schools; and not altogether unknown at present, as I have lately witnessed.

COLD BATH. COLD AIR.

However often the measure has been advised as a restorative, or resorted to without advice, it is certain that much sickness, and many deaths, have been, and are occasioned, by immersion in water below 50° and 60° . It may be in general asserted, that no measure more certainly enfeebles the weak, and more certainly excites pulmonary consumption in the predisposed, or hurries on the disease faster when it is forming.

Mr. H. a fine young man, (in whose family consumption had been) feeling himself reduced after some juvenile excesses, imagined sea bathing would restore his

strength. After two or three immersions, a dry cough came on, which increased with his bathings. Suspecting at last that he was doing himself injury, he quitted the sea, and applied to me. I found him in a confirmed consumption, and already so reduced in strength, that his feet swelled in the evening. His complaint could hardly be said to have had any first stage. He immediately went abroad, and died in a very few weeks. This, the rapid progress of the disease perhaps excepted, is a very common history, where cold bathing has been unadvisedly practised.

Men of strong constitution, reduced by temporary causes, are liable to consumption on exposure to severe cold. For it is immaterial whether the medium in which they are immersed be water or air. And unless peculiarity of constitution, or the exertion of certain muscles, renders other parts particularly sensible to cold, the chest will generally suffer most. Mr. G., the

late able conductor of a well-known newspaper, of a strong constitution, and without hereditary disposition to consumption, had been much weakened by a casual indisposition. The medicines he took produced a troublesome diarrhoea, and a severe fixed pain in his bowels. One day, on being exposed to a stream of cold air, the pain suddenly shifted from his bowels to his chest. A cough came on, which never afterwards quitted him, and he died of consumption. This is an instance of that translation of disease from the abdomen to the chest, of which I before observed that it not unfrequently happens to persons, naturally feeble.

The career of John Wesley, the captain general of the methodists, had nearly finished as early as 1753, in consequence of successive exposures to cold, when he was greatly debilitated. In October of that year, he contracted an ague, but went on travelling and preaching with his usual ardour of

ambition or fanaticism.---“ Sunday, Nov. 4, (says he), I rode to Hayes, because I had promised, though I was much out of order. It was with the utmost difficulty that I read prayers, and preached, and administered the sacrament. I went through the evening service with more ease. But at night my strength quite failed. I should have taken some rhubarb next day, but I had no time, having classes to meet from morning to night.

“ Thursday, 8th. In the night my disorder returned more violent than it had been since I left Cornwall. I should have taken some ipecacuanha in the morning, but had no time to spare, my business being fixt for every hour, till four in the afternoon. And by that time all my complaints were gone, so that I needed only a little food and rest. Monday, 12th. I set out in a chaise for Leigh, having delayed my journey as long as I could. I preached at seven, but was extremely cold

all the time, the wind coming strong from a door behind, and another on one side, so that my feet felt just as if I had stood in cold water. Tuesday, 13th. The chamber, wherever I sat, though with a large fire, was much colder than the garden, so that I could not keep myself tolerably warm, even when I was close to the chimney. As we rode home on Wednesday, 14th, the wind was high, and piercing cold, and blew just in our face, so that the open chaise was no defence, but my feet were quite chilled. When I came home, I had a settled pain in my left breast, a violent cough, and a slow fever. But in a day or two, by following Dr. Fothergill's prescriptions, I found much alteration for the better; and on Sunday, 18th, I preached at Spitalfields, and administered the sacrament to a large congregation.

Monday 19, I returned to Sherborne, and gained strength considerably; till about eleven at night. On Wednesday, 21,

I was obliged by the cramp to leap out of bed, and continue for some time walking about the room, though it was a sharp frost. My cough now returned with greater violence, and that by day as well as by night.—Saturday 24, I rode home, and was pretty well till night. But my cough was then worse than ever. My fever returned at the same time, together with the pain in my left breast. So that I should probably have stayed at home on Sunday 25, had it not been advertised in the public papers that I should preach a charity sermon at the chapel, both morning and afternoon. My cough did not interrupt me while I preached in the morning, but it was extremely troublesome while I administered the sacrament. In the afternoon I consulted my friends, whether I should attempt to preach again or no. They thought I should, as it had been advertised. I did so, but very few could hear. My fever increased much

while I was preaching. However, I ventured to meet the society. And for near an hour my voice and strength were restored, so that I felt neither pain nor weakness.

Monday 26, Dr. Fothergill told me plain, I must not stay in town a day longer, adding: "*If any thing does thee good, it must be the country air, with rest, asses' milk, and riding daily.*"—The medicines producing no benefit, "about noon (the time that some of our brethren in London had set apart for joining in prayer) a thought came into my head to make an experiment. So I ordered some stone brimstone to be powdered, mixt with the white of an egg, and spread on brown paper, which I applied to my side. The pain ceased in five minutes, the fever in half an hour. And from this hour I began to recover strength." (*Wesley's Journal*, Vol. xxix. 290—293.) It should not be omitted that to the benefit of sulphur

and supplication, he added four months repose from his apostolic labours.

Had Wesley been at this time a young man, instead of fifty one, and of phthifical habit, and the future exertions of his lungs less, his escape might have been quoted as evidence in favour of incessant horse-exercise; an idea likewise suggested by the life of the nobly active Howard. (*Dr. Aikin's character of John Howard, Esq.* p. 16.) But in reading the passage where the feet are described *as feeling just as if he stood in cold water*, it is difficult to avoid reflecting how many young people, especially young women, with constitutions as weak by nature as Wesley's was rendered by disease, with not greater warmth of devotion, with more predisposition to pulmonary complaints, without the preacher's advantage of strong bodily action, may have carried away death in their bosom from the spot where they stood to hear him! It is certainly nothing uncommon to find

the first origin of consumption distinctly referred to a chill, received at church. And cold as many of these structures are, it is evident from the nature of things, that in the winter season, the cold bath itself cannot be more dangerous to that class of the unhealthy to whom these observations refer.

Another way in which girls in a certain line of life receive fatal chills, deserves to be pointed out. Either to economize fuel or *because they will not give trouble*, they not unfrequently, in cold weather, go through the long ceremony of preparing for a ball in a chamber without a fire. In this situation, if they must subject themselves to its hazards, they should drink once or twice a small quantity of hot water. This will prevent the chill, without producing any bad effect, if no more be taken than just enough to keep the sensations comfortable. A little experience will determine the quantity and the temperature.

The Dauphin, father to Louis xvi. whose excellence of disposition and fortitude under his severe illness caused him to be so deeply regretted, owed his premature death to a cause, that is often fatal to persons employed in sedentary occupations. His feet were subject to profuse perspiration. After remaining a long time in a damp place, he fell into a state of languor; his chest became disordered; and he lost his flesh. It was in this state that he had his portrait taken, and sent to Marechal Richelieu—to whom he had before given a portrait, drawn in his full health—with this message. “*It is that you may compare the past with the present. You will find me much changed. Soon I shall be more so.*” After his death, his lungs were found almost totally destroyed.

To enumerate all the ways in which cold excites pulmonary consumption in those who have the disposition, would be equally difficult and useless. It suffices to

have given a distinct admonition against great and long-continued chills. It is of course that they should injure different people in different degrees.

It will sound almost incredible that young persons, not merely in a state of suspicious debility without any formed disease, should be plunged into the cold, fresh, or salt bath, but that those who have hardly recovered from a tedious complaint of the chest, attended with a cough, should receive the same dangerous advice. Among the phthical patients for whom I have been concerned, this case however has not seldom occurred. When the circumstances have been peculiarly distinct, I have, for the sake of greater exactness, requested a written account from the party, with permission to use it for the public information. The following is one of these narratives. How far it renders apparent the connection between cause and effect, I shall not labour to explain.

HOT-WELLS, April 4, 1798.

Dear Sir,

In compliance with your desire to be informed of the symptoms that preceded and followed my bathing in the sea last autumn, I proceed to state, that a fright I received in the month of May, occasioned a gradual loss of sleep, appetite, and strength; and at last, in addition to these complaints, I had a little short, dry cough, morning and evening, so trifling indeed, that had not a friend anxiously observed it, I should not have thought it worthy of my attention. On my applying to a very clever man for medical advice, he persuaded me to remove to ———, where I should meet with conveniences for bathing. About the middle of August, I complied with this advice. Between the hours of seven and eight in the morning, I was surprized, when in the water, by (as

I find) an uncommonly obstinate struggle to recover my breath. I flattered myself, from the glow I felt after quitting the machine, and appetite with which I eat my breakfast, that I should be relieved of all my evils by this pleasant remedy. However, I did not remain long under the influence of this delusion, as a lassitude and violent head-ach succeeded immediately, attended at night with a fever, and slight delirium, and increase of cough. I persisted in my intention of bathing again the third day, but the effects were evidently so alarming, that I consented to apply again for directions how to remove my now constant companions, the cough, fever, &c. I was brought so weak, that on the eighth day from my first bathing, I fainted away three times before breakfast. I need not inform you, sir, of the perseverance with which this cough, and complaint on the lungs, has accompanied me through

the winter, notwithstanding your unceasing skilful endeavours to the contrary.

I am, Sir,

with great truth,

TO DR. BEDDOES. L. BAINES.

When I saw this young lady first, the symptoms of confirmed consumption were too obvious to admit of the smallest doubt. The aggravation of symptoms after the bathing continued with scarce an intermission till death. The example is the more remarkable, because the patient herself was far from puny, the parents healthy and strong; and the family for two generations at least, if not more, free from consumption.

The following instance is not less distinct. Readers accustomed to candour, will smile or frown, according to the mood they may be in, at the attempt to palliate the unsuccessful prescription.

Note from the Rev. J. A. BROMFIELD.

Bristol Hot-Wells, March 22, 1798.

Sir,

In answer to your questions, I beg leave to inform you, that in June, 1788, I was first attacked with a cough, and recommended by a physician of reputation "to go to the sea air, and when the cough was subdued by medicine and change of air, to bathe in the sea;" the cough was soon subdued by the means prescribed, and then with every precaution the same skill could dictate, I bathed in the sea once, went down in a carriage, and returned on foot a mile and a half; but instead of a glow, my bathing, notwithstanding my walk afterwards, was attended with coldness, and a very speedy return of my cough, and even a temporary confirmation of it, for it was hardly got under again before the winter set in. I have only to add, that I bathed about

three in the afternoon, the tide then serving, after a slight repast about noon ; to which, but wrongly in my opinion, the subsequent mischief was attributed. I am,

Sir,

your very obedient servant,

To Dr. BEDDOES. J. A. BROMFIELD.

Questions and observations.

Could bathing at 3 o'clock p. m., after a cold repast taken two hours before, produce such an effect ?

Would that effect have been avoided by early bathing before breakfast ?

If evening bathing, and after a moderate meal, was the cause of the mischief, why did not two other invalid bathers, who went in the same carriage, and did not take the precaution of walking back, suffer likewise ?

It may be observed, that for nine summers preceding 1788, I bathed in fresh

water constantly, and often twice or more times in the day, without injury.

When I bathed in the sea early in July, and relapsed after it, I only dipped into the sea, dressed instantly, and got into exercise directly.

This letter, with or without these observations, Dr. Beddoes, as he sees occasion, is welcome to publish.

J. A. B.

In scrophula, cold sea-bathing was heretofore in high repute. The opinion of its efficacy was probably founded, in part, on its supposed bracing power. It is however certain, that in this complaint the latest observers declare strongly against the cold, and equally in favour of the tepid bath, whether of salt or fresh water. (See Reid on *cold and warm bathing*. Cadell. 1795).

COOL BATH.

By the cool bath, I understand water between eighty and sixty-five degrees of the thermometer. In the case of air, the lowest of these temperatures scarce feels cool, and the highest we call hot. But it must be remembered that water, by reason of its density, has a far greater power of cooling than air. Hence I suppose, if our sensations could be measured, we should feel more chilled by water at 60° , than by air much below the freezing point.

In summer, people rather weakly, who have no cough, or other complaint of the chest, may plunge for an instant into water at 75° . In the winter, exposure to the atmosphere, but in a way not to be chilled by it, will be sufficient for such constitutions.

Experience sufficiently proves the utility of dipping infants in cool or cold water. In infancy, the danger to the lungs scarcely exists. The action of cold on the surface of the body, at that age, produces different associations of animal motions, whether from the less preponderance of the arteries in the chest, or from whatever other cause. And much advantage is gained towards future health, by establishing the habit of these associations. The impression of cold will not afterwards tend in any thing like the same degree, to induce pulmonary disease. In other words, people may be brought to bear cold better by early use.

The temperature of the water in which the infant is to be dipped, must be regulated by his constitution. The more puny, the less cool should the bath be, especially at first. An observant parent will easily distinguish by the effects, when the temperature is too low. The countenance,

in this case, will be dull, the motions sluggish, the nose, ears, and feet cold.

When there is an increase, or no immediate diminution of alacrity, it may be concluded that the bath is not too cold. And the continuance or improvement of health, in the long run, will furnish another criterion.

Some years ago, for want of understanding the difference between the effect of momentary application of cold, and continued chills, dangerous mistakes seem to have been common in physical education. In many families, children were kept perpetually shivering under light cloathing, and in cold apartments. Of those whom this severe discipline rendered invalids for life, a few survive; but the great majority has perished by mesenteric atrophy, by consumption, or by some other disease of debility.

APPROACH of CONSUMPTION.

In a work intended for the direction of readers, provided with such notions only as chance has offered, and therefore often prejudiced, I have regarded prolixity as by much the smallest of two opposite faults. So far, therefore, in order to avoid dangerous ambiguity, or to remove groundless scruples, I have been profuse in examples and authorities. But by maintaining the same course any longer, I should overstep the limits which I have myself endeavoured to fix for this class of compositions, in the *introductory lecture* already quoted, and should incur the censure due to those mischievous writers, who pretend to instruct persons that are unaccustomed to the appearance of diseases, and are destitute of preliminary information, in the proper application of remedies. In the little that

follows, I shall therefore only endeavour to make it understood, when it is time to apply for advice, and how the serious evil of useless medication may be avoided.

In medical writings, the indisposition that precedes pulmonary ulceration, and hectic fever, has no proper name; and as it is generally passed before the physician is called in, it has not been described with sufficient minuteness.

In young people, of narrow chest, or hereditary disposition to consumption, unusual lassitude is often the most distinct sign of the approach of the disease. It has been sometimes related to me as part of the history of the consumptive, that on the first deviation from health, they have drooped in a manner, which gave occasion to their friends to reproach them with idleness. When quicker respiration, and oppression after dinner, or regular evening indisposition, with flying chills and flushes are likewise observed, an accurate exami-

nation ought to take place without delay. The pulse is at present considered as scarce falling under the cognizance of any but professional men, though others can easily form some judgment with regard to its frequency. When consumption is advancing, it will be more frequent than natural, and in general much more frequent towards the close of the day. Several of these signs may concur, and even great shortness of breath be at the same time present, without danger. The complaint known under the name of chlorosis, bears a gross resemblance to consumption; and its favourable termination, which with any tolerable management, is a thing of course, often deceives the uninformed into a belief that this or that water, this or that family receipt, this or that advertised medicine, are efficacious in true consumption. Those cases, however, are very rare, in which the experienced practitioner of physic cannot distinguish the two disorders at the first

glance. Sometimes, however, there is a real difficulty. A mistake is the more to be apprehended, because the remedies for chlorosis, probably by giving a still greater preponderance to the arteries over the absorbents, hurry on the formation of tubercles. The practitioner, who can hardly fail to be aware of the difficulty when it exists, will keep a watchful eye upon the symptoms, and soon correct his error, when he is originally unfortunate in his decision. But those who confide in advertised or family compositions, will be apt to go on blindly following directions, without ever suspecting how essential it is, in the first place, to be certain of the real state of the patient.

A cold may occasion tubercles where none pre-exist, and may greatly advance them, where they have been slowly forming. Where it lasts many days, particularly in those of a certain age and habit, it becomes justly suspicious. But many

consumptive people believe *they have only a cold*, when their complaint has really nothing of the nature of catarrh; when it has begun gradually, and not from any single impression of cold; when there has been no discharge from the nostrils; when no expectoration follows the severe fits of coughing, or none but of a little frothy phlegm. A person well versed in diseases will soon distinguish the catarrhal from the church-yard cough. But to the uninstructed, this is an abundant source of inveterate error, and to the fraudulent, of profit; nor can the source fail, till instruction in the principles of animal nature shall become a branch of general education. False judgments, propagated with that positiveness which is peculiar to ignorance, have long maintained, and will long maintain, the demand for those *syrups and balsams*, of which it cannot certainly be denied, that they are infallible in all such bad coughs, as would go off of themselves.

It sometimes happens, that a dangerous weakness of the absorbents exists on the surface, as well as in the substance of the lungs. This is known by frequent expectoration of mere phlegm, in small quantities at a time, without coughing; and when young persons have the habit of expectorating into their handkerchiefs, which often they will continue, for a long time, with such dexterity as not to be noticed by careless observers, the state of the chest, and of the system in general, should be carefully ascertained.

Loss of flesh, of colour, and strength, with the falling off of the hair, or any similar sign of local, combined with general debility, will alarm the most heedless parent.

Many of the signs enumerated in this section, make their appearance for years before the lungs become ulcerated; and in the interval, the patient's state will be undergoing perpetual changes. For a time,

there will be considerable debility, want of refreshment from sleep, loss of appetite, squeamishness, or sickness on rising, emaciation, with manifest quickness of respiration, independent of exertion, if the motion of the chest be watched. Most of these threatening appearances shall vanish and a degree of strength and plumpness return; and the reciprocation be kept up till some apparent or obscure cause produces an enlargement and ulceration of the tubercles.

Journeys, by land or water, often procrastinate, and sometimes, perhaps, accelerate this event. The effect of exercise on horseback, or of motion in a carriage, differs exceedingly in different individuals, whether they are actually consumptive, or are only disposed to become so. After a ride or a drive of some continuance, it has been very much a custom with me to examine the pulse. I have sometimes found it sensibly slower; sometimes quicker;

and the feelings at the time, and the effect upon the complaint, have always corresponded. In two patients, of whom, whether I considered the fate of their relations, or their own conformation, or the present symptoms, I could not doubt that they were in confirmed consumption, I have seen the high praise bestowed by Sydenham upon incessant equitation, justified. One, after remaining well a year, relapsed and died. Of the other, I learned that he continued well for more than two years; and I do not know that he has relapsed.

The general feelings, and the increase or diminution of feverishness, must determine the quantity and kind of exercise, proper for the individual, in whom signs of imminent consumption appear. The friends of invalids should therefore take care not to force them to exertion in defiance of nature.

Various dissections, and especially those of the great anatomist Camper, prove that

there is a variety of consumption, without ulceration of the lungs ; but this variety we have not been sufficiently taught to distinguish during life. A chief circumstance here must be extraordinary debility of the superficial absorbents ; and perhaps the first stage consists in the expectoration of mucus, lately mentioned, which might be termed a *bronchial gleet*.

CURE of CONSUMPTION.

Ever since I have had some opportunity of becoming acquainted with the condition of the medical art, as it is practised in the great world, the lot of mankind has appeared to me scarce on any account so much to be deplored, as on account of the feelings of certain leading professional men, in respect to the treatment of consumption. On quitting the schools of medicine, I

imagined that physicians of great name, stimulated by a mixed feeling of indignation and shame, would be tormenting themselves with perpetually reiterated efforts to subdue this great enemy of the human species ; and however often they might be baffled, that they would always feel it their duty to return to the charge.

I supposed, that even a regard to gain would force them out of a system, which extra-professional persons, from witnessing its daily inutility, must learn to despise, and rather than trust to it, have recourse, as in prudence they might, to the first secret preparation they saw announced in the newspapers. Little did I think that these men—leaders only in vogue, and last in merit—abandoning for themselves all idea of improving the treatment of a disease, from which they drew immense gains, would consider every endeavour to supply their deficiencies, if not as a crime against society, at least as an infringement upon

the almost total monopoly they enjoy of the lucrative part of the *sick-trade*, and that they would represent to the credulous, new methods as experiments to be dreaded----- As if any thing could be more ignominious than perseverance in experiments, of which constant repetition had rendered it morally certain that they would fail : or as if in a disease so invariably fatal, any innovation, that does not increase pain or shorten life, could be a just object of apprehension. For at all events, the innovator, when he finds his extraordinary measures fail him, will have exactly the same resources as the adversary of improvement. There will remain to him the draught of Riverius, the syrup of poppies, the acid of vitriol, the chalk mixture, and that whole tribe of palliatives, which between ourselves, gentle reader ! an observant nurse may soon learn to administer, to nearly as good advantage as the most specious doctor.

Besides shallow men, rendered insolent

by success, modest men, loath to depart from prevailing opinions, have been satisfied to believe in the impossibility of *dispersing* tubercles, and, by consequence, of preventing or curing consumption, in the great majority of instances. Their timidity prevented them from feeling how immoral it was to receive compensation, without straining every nerve to merit it; and how humiliating to go on without a possibility that the great desideratum should be supplied, except by inspiration granted to some female dotard, by the successful temerity of some empiric, or by information, imported from some tribe of savages.

Had they been bold enough to scrutinize the mass of physiological facts, they must have perceived, that the dissipation of pulmonary tumours, and the cure of pulmonary ulcers, are just as much within the powers of the animal œconomy, as the dissipation of various other tumours, and the cure of various other ulcers. To shew

that I do not practise the deceit of turning prophet after the event, I shall produce a passage which I submitted to the consideration of medical philosophers, upwards of two years ago. "The discovery of every new specific (or substance capable of correcting given morbid actions of the system) affords a new reason for believing in the existence of others. For some scrophulous ulcers, we seem to have found a new specific in forrel; for (some) venereal and hepatic affections, in nitrous acid; such as we possessed before in mercury. These are diseases, in themselves, not many degrees less formidable than cancer and consumption. We have analogies enough to persuade us, that there is no lesion of organization, induced by the powers of the living body, modified in one way, which the same powers, differently modified, may not repair; and that by dint of frequent ventures, some happy hand will draw from the lottery of nature, a remedy

for each of those diseases which at present most baffles the physician, and tortures the patient." (*Medicinal use of facitious airs, part V. App. p. *****86*). Nor is it necessary to trust this reasoning to mere analogy; the recoveries, however rare, that have taken place, whether from sea voyages, or accidental combinations, shew that the cure of consumption is no physical impossibility. And that a remedy should not sooner have been discovered for this, than for some other disorders, is less owing to the nature of consumption, than to those accidents which brought the European world acquainted with Peruvian bark, quicksilver, and other powerful articles of the materia medica.

In a recent publication of distinguished erudition, a bare index of the medicines recommended in consumption, and of the authors who have recommended them, fills twenty quarto pages. (*Ploucquet initia bibliothecæ medico-practicæ. Tubingæ 1796.*

VI. 454—473). Notwithstanding this abundance, had the present essay been sent abroad a few months ago, I must have concluded it with an exhortation to employ preservative means with the greater diligence, as well on account of the *certain mortality* of the disease, as of its painful progress. For it becomes me to acknowledge, that the trials that have been made of factitious airs and vapours, seem, as yet, very far from having produced any thing like a successful mode of treating consumption. The utmost that can be said, is, that certain vapours and stabling the patient with cows are not unpromising, when the method is tried on a proper scale. As to the efficacy of this or that spring, in any period of consumption, there is nothing in the pagan and popish legends concerning consecrated fountains and holy water, more absurd than such a persuasion.

Happily the successive endeavours of

English physicians promise a brilliant æra for humanity. An effectual remedy for consumption appears to have been nearly ascertained ; and on reverting to the history of the most brilliant discovery in physiology, and this, the most useful discovery in medicine, it will appear singular that they should have been approached by the same gradual steps. The predecessors of Harvey were acquainted with such proofs of the circulation of the blood, that it is astonishing they did not combine them so as to leave no doubt in their own minds, or in the minds of others. In like manner, there existed, before the two physicians, who have taught its safe, easy, and effectual employment, such proofs of the antiphthifical powers of the FOX-GLOVE, that one must wonder its use had not, a number of years ago, become general.

It is probable that certain beneficial effects of this plant, having been accidentally discovered, were made known, for a

long time, only by oral communication. Gerard and Parkinson, old botanical writers, mention it as an expectorant, and Dr. Withering has printed from *Parkinson's Herbal*, the manuscript note of a country surgeon, affirming its efficacy in consumption. In the *Family Dictionary* of Salmon, it is said, upon the faith of long experience, perfectly to cure "a phthisis or ulcer of the lungs, when all other medicines have failed, and the sick are esteemed past cure."

Notwithstanding the temptation, which such an encomium held out in so calamitous a disorder, the difficulty experienced in managing the medicine, and its violent effects, occasioned it to be abandoned, at least, by the regular practitioner, till from its efficacy in stimulating the languid absorbents of the dropical, Dr. Darwin inferred its possible use in pulmonary ulcers; and corroborated his inference by that medical miracle—a cure of confirmed

consumption—evidently wrought by this plant (Medical transactions, 1785, iii. 276).

The facts related by Dr. Darwin, and others published by Dr. Withering about the same period, so far overcame the apprehensions of a large portion of the faculty, as to induce them to prescribe fox-glove in dropsy. As the period necessary for its exhibition in dropsy is but short, its violent effects appeared less intolerable. But there could be no hope of healing ulcers of the lungs in a short time; and the use of so formidable a remedy in consumption seemed either to be rejected by the common feelings of patient and physician, or else it was administered with a degree of timidity which could not fail to deprive it of its efficacy. In spitting of blood, however, and incipient consumption, it was occasionally ventured upon, and as Dr. Ferriar and, I believe, others report, with success.

In this situation the use of fox-glove

in consumption remained ; and the sick were left without relief, and without hope, till Dr. Drake, and Dr. Richard Fowler, led by an enlightened view of cause and effect, seem to have discovered what had long been the universal wish, but hardly, perhaps, the expectation of any. Dr. Drake proposed to himself two objects. He hoped that the fox-glove, by promoting absorption, would prevent that hurtful change in the ulcerous discharge, which he, in common with Dr. Darwin, supposes to be produced by the contact of air. At the same time, by powerfully retarding the action of the arterial system, the secretion of matter might be diminished or suspended. He doubted, indeed, whether he should be able by the cautious and continued use of fox-glove, to render these consequences sufficiently permanent to promote a cure. He had the satisfaction, however, to find in two instances, which he has related at large, that the pulse could be

lowered to forty strokes in a minute, and the depression continued till a compleat and permanent cure was effected.

Dr. Fowler's attention was directed to the fox-glove, as a remedy likely to be useful in phthisis, by its almost uniform effect in rendering the action of the arteries more slow than natural, at the same time that it seems to excite the absorbents. Diseased parts of the body may be removed by depriving them of *all* supply of blood, and even by diminishing to a certain degree, the arterial supply, while the absorbents are left to act in full force. My friend hoped that this might be effected by the operation of fox-glove, on tubercles in the substance of the lungs : and proceeding upon this idea, he has been successful in many cases of confirmed consumption, in some of which, the patients seemed not to have many days to live. (*West-country contributions, Longman.*) In his letters to the author, many months ago, he expressed

the fullest confidence that this treatment would generally succeed.—Both these physicians thought and acted independently of one another.—In cases of pulmonary disease where the existence of tubercles was indicated by every symptom, and where they seemed ready to break out into open ulcers, I have fully verified their observations; and I daily see many patients in pulmonary consumption, advancing towards recovery with so firm a pace, that, I hope, consumption will henceforward as regularly be cured by the fox-glove as ague by peruvian bark. Could we obtain a single auxiliary for fox-glove, such as we have in many substances for the bark, I should expect that not one case in five would terminate, as ninety-nine in an hundred have hitherto terminated. But I believe a majority of cases will yield to simple fox-glove. It is evident, that no new cases need be suffered to advance beyond the first stage without the applica-

tion of this medicine, and few into it.

I mean not to conceal that the fox-glove is a dangerous, which means only that it is a powerful, medicine. I say nothing of the manner in which it should be administered; because no person, unpracticed in physic, should attempt to administer it. I hope, however, that every reader of this treatise, will insist that it shall cautiously and perseveringly be administered to his consumptive friends. All other methods are comparatively frivolous. Most methods absolutely so. And I know from experience, that the fox-glove may be given with safety, to hectic and probably consumptive infants, a few months old.

As I pretend to no share in this most beneficial of discoveries, I might speak with the less reserve in praise of those who have accomplished it. But there are occasions on which *all* encomiums are inadequate, and *any* encomiums impertinent. The least considerate must perceive, that

if the subsequent harvest correspond to the first fruits, there is a cause for national rejoicing, greater and more universal than has ever before occurred. The authors of *distant* benefits live and die, unnoticed, because few can judge of the solidity of the foundation they have laid, or the utility of the future structure. But the advantage here, must strike every eye, and come home to every bosom. No man is without some notion of the evil; and none therefore, without some measure of the good.

I know that of all things in which they are intimately concerned, mankind are the most incompetent to judge of medical merit. But there are differences which none can fail to recognize. If in *former* times, public favour and public honours may have been thrown away upon physicians, whose names were unknown in the republic of science, however they might be revered in the circles of the frivolous, those

with whom the distribution of honours and rewards now rests, are surely too discerning and too just to suffer inefficiency and mediocrity to usurp what all the world must acknowledge to be due to effective talents.

The confidence which I have expressed in the newly ascertained treatment of consumption, may appear scarce consistent with the zeal with which I have recommended a preventative regimen. But it should be observed, that those who have least of the phthical disposition, will enjoy an existence, in other respects, less harassed by painful sensations; that, if they should be thrown into the disorder, the means of cure will probably be more certain, (for, as I have already suggested, *West-country Cont.* p. 534-5, in some puny constitutions the absorbents will perhaps not be sufficiently susceptible of stimulation); that they will be less liable to relapses; and that it is still more desirable,

now we have a remedy that will stop its progress, to be apprized of the approach of consumption. For the foxglove ought not less to be employed when the disorder is forming, than when it is formed.

I cannot dismiss this publication without expressing my conviction that no man's diligence can provide him with a series of facts, relative to the general health, which others may not have it in their power to complete and amend. If what I have written shall occasion any new information to be brought forward, whether it come through the medium of the press, or by private correspondence, I shall receive it with pleasure, and avail myself of it with an impartial regard to public utility.

E N D.

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